Chapter 1
Math

The math test of the Praxis Core exam includes 56 questions in four major areas of math. This part of the book explores each of those areas and the general math topics that are covered on the test. In this chapter, you can gain further understanding of the skills you need and get perspective on an array of questions and approaches to various math topics.

The Problems You'll Work On

Math questions may be multiple choice, fill-in, or select all that apply. When working through the questions in this chapter, be prepared to answer questions on these topics:

- **Number and quantity,** including topics such as basic operations, number form conversions, order of operations, number order, sequences, word problems, and measurement
- **Algebra,** which includes combining like terms, using given variable values, solving equations and inequalities, and solving algebraic word problems
- **Geometry,** which covers basic geometric building blocks, angles, polygons and circles, three-dimensional figures, and the coordinate plane
- **Statistics and probability,** involving representations of data, central tendencies, probability calculations, and scientific notation

What to Watch Out For

Various types of mistakes can occur when you're working math problems. Be on the lookout for common errors such as these:

- Overlooking part of a rule or confusing one rule with another
- Misusing the four-function online calculator
- Confusing one mathematical term with another
- Using the incorrect expression to represent what's described
- Assuming all geometric figures are drawn to scale
- Stopping before answering the final question in a multi-step problem

Number and Quantity

1. What is the value of the following sum?

$-3+14-(-7)$

(A) 24
(B) −10
(C) 4
(D) −24
(E) 18

2. What is the sum of −5, −10, 4, and −7?

(A) −18
(B) −26
(C) 18
(D) −4
(E) 26

3. Which of the following is the value of this product?

$(5)(-1)(3)(-2)(1)(-3)(-1)$

(A) 45
(B) −90
(C) −45
(D) 90
(E) 30

4. What is the value of $(-1)^{379}$?

(A) 379
(B) 1
(C) −379
(D) −1
(E) 378

5. Which of the following is a factor of 63?

(A) 31
(B) 21
(C) 13
(D) 16
(E) 6

6. Which of the following is NOT a factor of 42?

(A) 7
(B) 6
(C) 14
(D) 21
(E) 18

7. All of the following are multiples of 53 EXCEPT

(A) 106
(B) 265
(C) 370
(D) 159
(E) 318

8. Ninety is NOT a multiple of which of the following?

(A) 30
(B) 5
(C) 15
(D) 23
(E) 3

9. What number is the greatest common factor of 28 and 72?

(A) 4
(B) 1
(C) 7
(D) 2
(E) 14

10. Which of the following is NOT a common factor of 84 and 144?

(A) 12
(B) 6
(C) 1
(D) 24
(E) 21

11. What is the least common multiple of 18 and 24?

(A) 48
(B) 72
(C) 144
(D) 432
(E) 6

12. Twenty-four is the least common multiple of 8 and which of the following numbers?

(A) 12
(B) 36
(C) 4
(D) 16
(E) 2

13. What is the cube of 5?

(A) 25
(B) 15
(C) 625
(D) 125
(E) 50

14. Which of the following numbers to the 4th power is 81?

(A) 27
(B) 3
(C) 9
(D) 36
(E) 13

15. What is the square root of 576?

(A) 34
(B) 56
(C) 24
(D) 44
(E) 26

16. If the cube root of 64 is multiplied by the greatest common factor of 20 and 45, what is the result?

(A) 100
(B) 20
(C) 80
(D) 60
(E) 40

17. What is half the square of the least common multiple of 14 and 21?

(A) 882
(B) 98
(C) 1,764
(D) 220.5
(E) 196

18. Which of the following is the value of this expression?

$$\left((2)^3\right)^2$$

(A) 8
(B) 16
(C) 32
(D) 72
(E) 64

19. What is the greatest common factor of the square of 6 and the least common multiple of 8 and 9?

(A) 72
(B) 6
(C) 24
(D) 36
(E) 18

20. Which of the following is a counterexample to this statement?

With the exception of 1, the common factors of 24 and 120 are even.

(A) 3
(B) 12
(C) 10
(D) 9
(E) 6

21. Which of the following is the simplified form of $\frac{12}{16}$?

(A) $\frac{4}{3}$
(B) $\frac{3}{4}$
(C) $\frac{6}{8}$
(D) $\frac{12}{16}$
(E) $\frac{2}{3}$

22. What is $\frac{20}{70}$ in simplest form?

(A) $\frac{4}{5}$
(B) $\frac{27}{77}$
(C) $\frac{2}{7}$
(D) $\frac{3}{8}$
(E) $\frac{4}{14}$

23. The fraction $\frac{4}{7}$ is the simplified form of which of the following fractions?

(A) $\frac{5}{30}$
(B) $\frac{16}{26}$
(C) $\frac{28}{49}$
(D) $\frac{6}{15}$
(E) $\frac{8}{15}$

24. If $\frac{55}{99}$ of the songs played on a radio station in a year were rock and roll songs, which of the following also represents the portion of rock and roll songs that were played on the station?

(A) $\frac{15}{19}$
(B) $\frac{50}{91}$
(C) $\frac{18}{35}$
(D) $\frac{8}{13}$
(E) $\frac{5}{9}$

25. Which of the following is $\frac{324}{918}$ in simplest form?

(A) $\frac{5}{18}$
(B) $\frac{6}{17}$
(C) $\frac{7}{16}$
(D) $\frac{8}{15}$
(E) $\frac{5}{13}$

26. Is $\frac{84}{96}$ equal to $\frac{14}{16}$?

(A) Yes
(B) No

27. Which of the following fractions is equal to $8\frac{2}{5}$?

(A) $\frac{17}{2}$
(B) $\frac{42}{13}$
(C) $\frac{42}{5}$
(D) $\frac{48}{5}$
(E) $\frac{5}{42}$

28. What is $9\frac{3}{8}$ in simplified fraction form? Write your answer.

29. What fraction is the simplified form of $-4\frac{3}{10}$?

(A) $-\frac{37}{10}$

(B) $-\frac{41}{10}$

(C) $-\frac{21}{5}$

(D) $-\frac{47}{10}$

(E) $-\frac{43}{10}$

30. Which of the following mixed numbers is equal to $\frac{81}{8}$?

(A) $9\frac{1}{8}$

(B) $1\frac{1}{8}$

(C) $10\frac{1}{4}$

(D) $10\frac{1}{8}$

(E) $11\frac{1}{4}$

31. Which of the following is equal to $\frac{37}{2}$?

(A) $16\frac{1}{2}$

(B) $15\frac{2}{5}$

(C) $15\frac{1}{2}$

(D) $16\frac{2}{7}$

(E) $18\frac{1}{2}$

32. The fraction $\frac{77}{11}$ is equal to which of the following?

(A) $7\frac{1}{7}$

(B) $6\frac{6}{7}$

(C) 7

(D) $7\frac{7}{11}$

(E) $8\frac{1}{7}$

33. Which of the following is the sum of $\frac{2}{5}$ and $3\frac{1}{5}$?

(A) $3\frac{2}{5}$

(B) $4\frac{1}{5}$

(C) 4

(D) $3\frac{3}{10}$

(E) $3\frac{3}{5}$

34. Which of the following equals the value of this expression?

$5\frac{2}{3}-7\frac{4}{5}$

(A) $1\frac{7}{15}$

(B) $-2\frac{2}{15}$

(C) $2\frac{1}{15}$

(D) -2

(E) $-1\frac{7}{15}$

35. What is the product of $2\frac{5}{8}$ and $-1\frac{5}{7}$?

(A) $-4\frac{5}{9}$

(B) $-2\frac{5}{8}$

(C) $-3\frac{2}{7}$

(D) $-4\frac{1}{2}$

(E) $-2\frac{3}{7}$

36. What is the quotient?

$\frac{4}{9}\div 11\frac{4}{5}$

(A) $\frac{20}{531}$

(B) $\frac{3}{201}$

(C) $\frac{37}{58}$

(D) $\frac{531}{20}$

(E) $\frac{21}{25}$

37. What is the value of $-9\frac{7}{8}$ divided by $-10\frac{5}{12}$?

38. Which of the following is $\frac{4}{5}$ in decimal form?

(A) 0.8
(B) 0.4
(C) 0.5
(D) 0.1
(E) 0.2

39. Which of the following is equal to $\frac{1}{8}$?

(A) 0.2
(B) 0.8
(C) 0.7
(D) 0.125
(E) 0.15

40. Which of the following is 0.34 expressed as a fraction in simplest form?

(A) $\frac{17}{50}$
(B) $\frac{17}{100}$
(C) $\frac{34}{100}$
(D) $\frac{1}{34}$
(E) $\frac{34}{1}$

41. The number 0.75 can be expressed as which percent?

(A) 0.075%
(B) 750%
(C) 0.75%
(D) 0.0075%
(E) 75%

42. The fraction $\frac{1}{4}$ can be represented as what percent?

(A) 2.5%
(B) 0.25%
(C) 250%
(D) 25%
(E) 0.025%

43. Which of the following is 42% in simplest fraction form?

(A) $\frac{21}{100}$
(B) $\frac{42}{100}$
(C) $\frac{21}{50}$
(D) $\frac{100}{42}$
(E) $\frac{2}{5}$

44. What is 34.848% in decimal form?

(A) 34.848
(B) 3,484.8
(C) 3.4848
(D) 348.48
(E) 0.34848

45. Which of the following is 496.032% expressed as a decimal number?

(A) 496032.0
(B) 49.6032
(C) 49,603.2
(D) 496.032
(E) 4.96032

46. What is $-2\frac{1}{8}$ in decimal form?

(A) −2.125
(B) −2.25
(C) −2.1
(D) −2.8
(E) −2.012

47. Which of the following is $8\frac{2}{5}$ expressed as a percent?

(A) 8.2%
(B) 8.4%
(C) 0.08%
(D) 80.4%
(E) 840%

48. What is the sum of $\frac{1}{12}$ and 3.178, rounded to the nearest thousandth?

(A) 3.3
(B) 3.26
(C) 3.262
(D) 3.026
(E) 3.261

49. Which of the following is the sum of this expression, rounded to the nearest tenth?

$46.893\% + 15.0723$

(A) 15.54123
(B) 15.6
(C) 4,704.4
(D) 15.5
(E) 4,704.3

50. Which of the following is the product of $\frac{3}{20}$ and −14.4?

(A) 2.16
(B) −2
(C) −2.16
(D) 2
(E) −2.07

51. Which of these numbers is greater?

(A) $\frac{3}{4}$
(B) 0.76

52. Which of these numbers has the greatest value?

$\frac{25}{8}$ $3\frac{1}{9}$ 3.1 3.11 $\frac{16}{5}$

(A) $\frac{25}{8}$
(B) $3\frac{1}{9}$
(C) 3.1
(D) 3.11
(E) $\frac{16}{5}$

53. Which of these numbers has the lowest absolute value?

$-\frac{3}{8}$ $\frac{23}{50}$ −0.47 0.471 $\frac{5}{12}$

(A) $-\frac{3}{8}$
(B) $\frac{23}{50}$
(C) −0.47
(D) 0.471
(E) $\frac{5}{12}$

54. Which of the following is the correct order of these numbers from least to greatest?

$\frac{27}{20}$ $1\frac{9}{20}$ 134% 1.36 $1\frac{7}{10}$

(A) $1\frac{7}{10}$, 1.36, 134%, 1.36, $1\frac{7}{10}$
(B) $\frac{27}{20}$, $1\frac{9}{20}$, 1.36, 134%, $1\frac{7}{10}$
(C) 134%, $\frac{27}{20}$, 1.36, $1\frac{9}{20}$, $1\frac{7}{10}$
(D) $\frac{27}{20}$, $1\frac{9}{20}$, 134%, 1.36, $1\frac{7}{10}$
(E) $1\frac{7}{10}$, $1\frac{9}{20}$, 1.36, $\frac{27}{20}$, 134%

55. Which of the following is the correct order of these numbers from greatest to least?

4.1 $\frac{411}{100}$ $\frac{105}{25}$ $4\frac{3}{20}$ 409%

(A) 409%, 4.1, $\frac{411}{100}$, $4\frac{3}{20}$, $\frac{105}{25}$
(B) $\frac{105}{25}$, $4\frac{3}{20}$, 4.1, $\frac{411}{100}$, 409%
(C) 409%, 4.1, $4\frac{3}{20}$, $\frac{411}{100}$, $\frac{105}{25}$
(D) $\frac{105}{25}$, 409%, $4\frac{3}{20}$, $\frac{411}{100}$, 4.1
(E) $\frac{105}{25}$, $4\frac{3}{20}$, $\frac{411}{100}$, 4.1, 409%

56. Which of the following numbers has a greater magnitude than $-12\frac{5}{8}$?

(A) 1,250%

(B) $-12\frac{11}{16}$

(C) $12\frac{13}{24}$

(D) −12.51

(E) $\frac{23}{2}$

57. What is the correct order of absolute value for these numbers, from greatest to least?

5.14 $\quad -5\frac{4}{25} \quad -\frac{128}{25}$

(A) $-5\frac{4}{25}$, 5.14, $-\frac{128}{25}$

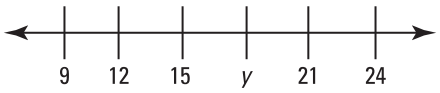
(B) $-\frac{128}{25}$, 5.14, $-5\frac{4}{25}$

(C) $-5\frac{4}{25}$, $-\frac{128}{25}$, 5.14

(D) 5.14, $-\frac{128}{25}$, $-5\frac{4}{25}$

(E) $-\frac{128}{25}$, $-5\frac{4}{25}$, 5.14

58. The distance from one labeled coordinate to the next on the number line is the same in every case. What is the value of *y*?



(A) 17.5

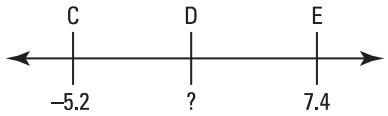
(B) 18.5

(C) 17

(D) 16

(E) 18

59. For the number line, if *D* is halfway between *C* and *E*, what is the coordinate of *D*?



(A) 2.2

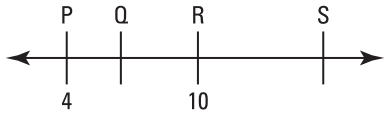
(B) 2.4

(C) 1.2

(D) 1.6

(E) 1.1

60. For this number line, the distance from *P* to *Q* is half the distance from *Q* to *R*, and that distance is half the distance from *R* to *S*. The coordinate of *P* is 4, and the coordinate of *R* is 10. What is the coordinate of *S*?



(A) 18

(B) 16

(C) 20

(D) 24

(E) 14

61. A number line contains the points *A*, *B*, *C*, and *D*. *C* is half the distance from *B* to *D*, and *B* is half the distance from *A* to *C*. Which of the following statements is true?

(A) The distance from *A* to *B* is greater than the distance from *C* to *D*.

(B) The distance from *A* to *B* is less than the distance from *C* to *D*.

(C) The distance from *B* to *D* is greater than the distance from *A* to *C*.

(D) The distance from *B* to *D* is equal to the distance from *A* to *B*.

(E) The distance from *A* to *B* is equal to the distance from *C* to *D*.

62. For this number line, *T* is halfway between *M* and *W*. What is the coordinate of *T*?

(A) 3.5

(B) 3

(C) 4

(D) 3.25

(E) 3.75

63. What is the seventh term of this sequence?

5, 9, 13, 17, . . .

(A) 21

(B) 20

(C) 29

(D) 24

(E) 33

64. What term belongs in the blank in this sequence?

14, 17, ___, 23, . . .

(A) 18

(B) 20

(C) 26

(D) 22

(E) 29

65. What is the first term in this sequence?

___, 6, 12, 24, . . .

(A) 5

(B) 2

(C) 4

(D) 3

(E) 1

66. The first term of a geometric sequence is 1. The fifth term is 81. How many times greater is each term, after the first term, than the preceding term?

(A) 2

(B) 9

(C) 4

(D) 18

(E) 3

67. Is this sequence arithmetic or geometric?

10, 15, 20, 25, 30, . . .

(A) Arithmetic

(B) Geometric

68. What is the value of this expression?

$2+3\times4+1$

(A) 25

(B) 20

(C) 21

(D) 15

(E) 24

69. Which of the following is the first operation that should be performed in evaluating the expression?

$7-2\left(3+5\times 2\right)^2$

(A) Multiplying 5 by 2
(B) Adding 3 and 5
(C) Subtracting 2 from 7
(D) Squaring 2
(E) Multiplying 2 by 3

70. Which of the following is the value of this expression?

$\left(3\times 8+2^2-4\times 6\right)\times\left(-1\right)+1$

(A) 11
(B) −143
(C) 5
(D) 0
(E) −3

71. What is the value of this expression?

$-5\times 4\div 2+1+\left(-3\right)-24\div 4\times 3$

(A) −14
(B) 12
(C) −30
(D) 1
(E) −3

72. What is the value of this expression?

$\dfrac{3\times 2-1+3}{9-\left(6\times 2-5\right)}$

(A) 2
(B) 4
(C) $\frac{3}{4}$
(D) 8
(E) $\frac{8}{27}$

73. What number results from a correct evaluation of this expression?

$4\left(8-\left(2\times 4-7\right)^3-5\right)^2+5$

(A) 16
(B) 13
(C) 3
(D) 26
(E) 21

74. What is the value of this expression?

$15\div 3+2\times 5$

(A) 15
(B) $\frac{3}{5}$
(C) 12.5
(D) $\frac{15}{13}$
(E) 3

75. Evaluate this expression.

$\frac{2}{3}+\frac{3}{4}\left(10\times 3+10\right)$

(A) $\frac{170}{3}$
(B) $\frac{9}{2}$
(C) $30\frac{2}{3}$
(D) $\frac{70}{12}$
(E) $5\frac{1}{2}$

76. Evaluate this expression.

$\frac{1}{2}+\frac{5}{8}\times\frac{2}{5}$

(A) $\frac{9}{20}$
(B) $\frac{3}{4}$
(C) $\frac{2}{3}$
(D) $\frac{6}{25}$
(E) $\frac{1}{3}$

77. What is the value of this expression?

$3+4-5\times6\div3-2+4\div2-7$

(A) -5
(B) 4
(C) -12
(D) -10
(E) 7

78. At a school, 110 of the students are boys and 122 of the students are girls. What percent, rounded to the nearest hundredth, of the students are girls?

(A) 92.423%
(B) 52.59%
(C) 90.16%
(D) 190.16%
(E) 52.586%

79. The number of records in Joe's record collection went from 400 to 408. By what percent did Joe's record collection increase?

(A) 16%
(B) 8%
(C) 5%
(D) 4%
(E) 2%

80. The number of cookies in a box went from 40 to 30. Which of the following accurately describes the change in the number of cookies in the box?

(A) 1.33% increase
(B) 0.25% increase
(C) 25% decrease
(D) 0.25% decrease
(E) 2.5% increase

81. If $\frac{2}{5}$ of the flowers in a garden are daisies, what percent of the flowers in the garden are daisies?

(A) 40%
(B) 4%
(C) 2%
(D) 20%
(E) 50%

82. At a police department, 14% of the officers are rookies. What is the ratio, in simplest form, of officers who are rookies to the total number of officers?

(A) $\frac{7}{50}$
(B) $\frac{50}{7}$
(C) $\frac{43}{50}$
(D) $\frac{50}{43}$
(E) $\frac{1}{6}$

83. Sebastian ran 42 miles in a week. The next week, he ran 48 miles. Which of the following accurately represents the ratio of the number of miles Sebastian ran the first week to the number of miles he ran the second week?

(A) $\frac{7}{8}$
(B) $\frac{8}{7}$
(C) $\frac{1}{6}$
(D) $\frac{1}{8}$
(E) $\frac{3}{4}$

84. Two U.S. states are not on the country's mainland. The U.S. has a total of 50 states. What is the ratio of U.S. states NOT on its mainland to U.S. states that are on the country's mainland?

(A) $\frac{1}{25}$

(B) $\frac{1}{50}$

(C) $\frac{2}{25}$

(D) $\frac{1}{24}$

(E) $\frac{1}{48}$

85. Luca is 12 years old, and Dave is 66 years old. What is the ratio of Dave's age to Luca's age, in simplest form?

(A) $\frac{66}{12}$

(B) $\frac{11}{2}$

(C) $\frac{12}{66}$

(D) $\frac{2}{11}$

(E) $\frac{54}{1}$

86. In a game of golf, Johnny scored 78. The next day, Johnny played another game of golf and scored 72. What is the ratio of Johnny's golf score on the first day to his score on the second day, in simplest form?

(A) $\frac{13}{12}$

(B) $\frac{12}{13}$

(C) $\frac{78}{72}$

(D) $\frac{72}{78}$

(E) $\frac{13}{78}$

87. Trace's video collection includes 132 comedy videos and 144 drama videos. What is the ratio of comedy videos to drama videos in the collection?

(A) $\frac{12}{11}$

(B) $\frac{132}{144}$

(C) $\frac{11}{12}$

(D) $\frac{144}{132}$

(E) $\frac{1}{11}$

88. In a classroom, 8 of the 30 students are football players. In another classroom, 3 of the 10 students are football players. What is the sum of the ratios of football players to students who do not play football for the two classrooms?

(A) $\frac{8}{30}$

(B) $\frac{4}{15}$

(C) $\frac{3}{10}$

(D) $\frac{13}{30}$

(E) $\frac{61}{77}$

89. The ratio of cashews to other nuts in Jar 1 is $\frac{1}{5}$. The ratio of cashews to other nuts in Jar 2 is $\frac{1}{3}$. How much greater is the ratio of cashews to other nuts in Jar 2 than the ratio of cashews to other nuts in Jar 1?

(A) $\frac{5}{15}$

(B) $\frac{2}{15}$

(C) $\frac{3}{15}$

(D) $\frac{1}{5}$

(E) $\frac{1}{3}$

90. In a town with a population of 2,400, 41% of the residents drive trucks. How many of the residents drive trucks?

(A) 1,124
(B) 984
(C) 1,492
(D) 432
(E) 587

91. On a track team, 11 of the 22 members are honor roll students. What percent of the members of the track team are honor roll students?

(A) 200%
(B) 50%
(C) 25%
(D) 75%
(E) 2%

92. What number results from tripling the sum of 4 and 7?

(A) 11
(B) 3
(C) 22
(D) 19
(E) 33

93. If 17 is decreased by 8 and the difference is multiplied by 2 more than itself, what is the result?

(A) 72
(B) 11
(C) 20
(D) 99
(E) 20

94. A group of 400 people went camping for a weekend. On Saturday, each camper engaged in one of the activities listed in the table. The table shows the percentages of campers who engaged in each activity. According to the table, which of the following statements is true?

ACTIVITY	PERCENT
Canoeing	34%
Hiking	21%
Rock Climbing	38%
Birdwatching	17%

(A) Sixty-eight campers went canoeing.
(B) Twice as many campers went birdwatching as the number that went canoeing.
(C) Eighty-two campers went hiking.
(D) Sixteen more campers went rock climbing than canoeing.
(E) Twenty-one more campers went rock climbing than birdwatching.

95. The table shows the percentages of political party affiliation at a college for eccentric students. The number of students attending the college is 2,850. How many more students are in a political party NOT listed in the table than students in a political party that is listed in the table?

POLITICAL PARTY MEMBERSHIP	PERCENT
People's Party of Utopia	22%
Anarchist Party of Not Voting	16%
Party of Free Market Communism	8%
Other	54%

(A) 8
(B) 1,539
(C) 627
(D) 228
(E) 1,311

96. An island had a population of 824 penguins. One-fourth of the island's penguin population moved to another island. The remaining population increased by $\frac{1}{2}$ and has remained the same since then. How many penguins are now on the island?

(A) 927
(B) 824
(C) 618
(D) 206
(E) 309

97. A bakery had 42 rolls on a shelf. A customer bought $\frac{4}{7}$ of the rolls on the shelf. How many rolls did the customer buy?

(A) 42
(B) 7
(C) 16
(D) 24
(E) 32

98. Karen read $\frac{5}{9}$ of the pages in a book the day she bought it. The next day, she read another $\frac{1}{5}$ of the book. What portion of the book had Karen read by the end of the day after she bought it?

(A) $\frac{25}{45}$
(B) $\frac{34}{45}$
(C) $\frac{9}{45}$
(D) $\frac{5}{45}$
(E) $\frac{5}{9}$

99. A soccer team has a uniform design with 5 stripes on the shirt. Each stripe has 4 stars. The team has 34 members. If every member of the team stands in the same room, how many uniform stars are in the room?

(A) 43
(B) 680
(C) 54
(D) 720
(E) 870

100. In an organization, $\frac{2}{9}$ of the members are from Texas. Three-sevenths of those members are women. Of those women, $\frac{5}{8}$ ride a bus to work. What portion of the members of the organization are women from Texas who ride a bus to work?

(A) $\frac{5}{54}$
(B) $\frac{191}{504}$
(C) $\frac{13}{54}$
(D) $\frac{12}{95}$
(E) $\frac{5}{84}$

101. The number of customers in a grocery store at 4:15 p.m. was 37. An hour later, the number of customers was 5 times as many. At the decoration store across the street, the number of customers in the store at 4:15 p.m. on the same day was 12. An hour later, the number of customers in the decoration store was $3\frac{1}{2}$ times as many. At 5:15 p.m. on that day, what was the sum of the number of customers in the grocery store and the decoration store?

(A) 185
(B) 42
(C) 188
(D) 240
(E) 227

102. Edward opened a savings account and put $500 in it. The interest on the account is 12% per year. If no money is deposited in or taken out of the account, how much money will Edward have in the account exactly a year after he put in $500?

(A) $560
(B) $60
(C) $6,000
(D) $440
(E) $620

103. Virgie buys a hat for $56. If the tax on the hat is 8%, what is the total price of the hat?

(A) $4.48
(B) $51.52
(C) $60.48
(D) $62.58
(E) $58.72

104. A governor wants $\frac{3}{11}$ of a state construction project finished by the end of the month. The construction supervisor wants $\frac{9}{33}$ of the project finished by the end of the month. Do the governor and the construction supervisor want the same portion of the project finished by the end of the month?

(A) Yes
(B) No

105. How many meters are in 14.8 centimeters?

(A) 14
(B) 1.4
(C) 0.014
(D) 140
(E) 0.148

106. How many deciliters are in 0.571 hectoliters?

(A) 5.71
(B) 571
(C) 57.1
(D) 5,710
(E) 0.571

107. A rock has a mass of 4.9327 dekagrams. What is the mass of the rock in centigrams?

(A) 4,932.7
(B) 49.327
(C) 0.49327
(D) 0.049327
(E) 493.27

108. Alexia drove 54 kilometers on the Natchez Trace. How many millimeters did she drive?

(A) 540
(B) 5,400
(C) 0.000054
(D) 0.00054
(E) 54,000,000

109. The amount of rainwater in a bucket is 0.38 liters. How many kiloliters of rain water are in the bucket?

(A) 380
(B) 0.00038
(C) 0.038
(D) 3,800
(E) 3.8

110. How many inches are in 4 feet?

(A) $\frac{1}{3}$
(B) 3
(C) 8
(D) 48
(E) 12

111. How many feet are in 4 inches?

(A) $\frac{1}{3}$
(B) 3
(C) 8
(D) 48
(E) 12

112. How many cups are in 4.5 gallons?

(A) 0.28125
(B) 3.56
(C) 20.5
(D) 72
(E) 11.5

113. How many gallons are in 4.5 cups?

(A) 0.28125
(B) 3.56
(C) 20.5
(D) 72
(E) 11.5

114. Simon walked 3 kilometers down a trail. He then got on another trail and walked 456 meters. What is the total distance Simon walked, in kilometers?

(A) 3.456
(B) 3,456
(C) 459
(D) 34.56
(E) 345.6

115. Dr. Richard has 5.382 kiloliters of a chemical in a drum. He pours out 42.79 hectoliters of the chemical. How much of the chemical remains in the drum?

(A) 48.172 kL
(B) 1.103 kL
(C) 4.8172 kL
(D) 4.9541 kL
(E) 374.08 kL

116. A baby frog had a mass of 4.07 decigrams. It now has an extra 0.08 kilograms of mass. Which of the following correctly represents the mass of the frog?

(A) 4.15 decigrams
(B) 804.07 decigrams
(C) 399 decigrams
(D) 0.080407 decigrams
(E) 1,207 decigrams

117. The height of a tower is 15 feet plus another 7 yards. Which of the following is a true representation of the height of the tower?

(A) 22 feet
(B) 66 feet
(C) 36 feet
(D) 52 feet
(E) 24 feet

118. A snail moved 2,088 inches north and then turned around and moved 72 yards south. Which of the following correctly represents the position of the snail in relation to its starting point?

(A) 42 feet north
(B) 58 feet north
(C) 42 feet south
(D) 58 feet south
(E) 2,016 feet north

119. Jake has 3.5 gallons of water in a jug for his football team. Each player has a 2-pint bottle. How many 2-pint bottles can be filled by the water in the jug?

(A) 28
(B) 56
(C) 14
(D) 7
(E) 112

120. Stefan ran 15 miles at a constant speed in 3 hours. What was his speed?

(A) 45 miles per hour
(B) 15 miles per hour
(C) 5 miles per hour
(D) 3 miles per hour
(E) $\frac{1}{5}$ mile per hour

121. Two trains start at the same place and move in opposite directions. One train moves at a constant speed of 56 kilometers per hour, and the other train moves at a constant speed of 72 kilometers per hour. How many hours will it take for the trains to be 729.6 kilometers apart?

(A) 10.13
(B) 13
(C) 601.6
(D) 5.7
(E) 0.175

122. What is 41 yards per minute expressed in inches per second?

(A) 24.6 inches per second
(B) 1,476 inches per second
(C) 123 inches per second
(D) 2.05 inches per second
(E) 8.2 inches per second

123. Herschel ran 40 yards in 4.2 seconds. What was his average speed in feet per minute, rounded to the nearest hundredth?

(A) 28.57 feet per minute
(B) 571.43 feet per minute
(C) 8.40 feet per minute
(D) 9.52 feet per minute
(E) 1,714.29 feet per minute

Algebra

124. What is the sum of $12xy$ and $14xy$?

(A) $26x^2y^2$
(B) $26xy$
(C) $2xy$
(D) 26
(E) $\frac{26x}{y}$

125. Which of the following is the product of $w-2$ and $w+5$?

(A) w^2-10
(B) $w^2-3w+10$
(C) $w+3$
(D) w^2-7
(E) $w^2+3w-10$

126. If a represents 2 pounds and b represents 4 ounces, which of the following represents 8 pounds and 12 ounces?

(A) $4a+3b$
(B) $3a+4b$
(C) $2a+4b$
(D) $a+b$
(E) $8a+12b$

127. Which of the following is the sum of $3p^3q^5r$ and $-7p^3q^5r$?

(A) $4p^3q^5r$
(B) $-4p^6q^{10}r^2$
(C) -4
(D) $-4p^3q^5r$
(E) $4p^6q^{10}r^2$

128. Which of the following is equal to $j\left(\left(wx^2y\right)^3\right)^5$?

(A) $j^5w^3x^3y^3$
(B) $jw^{15}x^{30}y^{15}$
(C) $j^3w^{15}x^{30}y^{15}$
(D) $jw^{25}x^{10}y^5$
(E) $5jw^{15}x^{30}y^{15}$

129. All of the following are like terms to $-17x^4y^2$ EXCEPT

(A) $8x^4y^2$

(B) x^4y^2

(C) $-17x^2y^2$

(D) $17x^4y^2$

(E) $\frac{4}{17}x^4y^2$

130. What is the product of $\frac{2}{5}ab$ and $\frac{3}{7}ab$?

(A) $\frac{29}{35}a^2b^2$

(B) $\frac{5}{12}a^2b^2$

(C) $\frac{6}{35}ab$

(D) $\frac{6}{35}a^2b^2$

(E) $\frac{5}{35}ab$

131. Which of the following is equal to this expression?

$$\left(9f^4g^4h^7\right)\left(8f^5g^5\right)$$

(A) $72f^9g^9h^7$

(B) $72f^5g^5h^7$

(C) $17f^9g^9h^7$

(D) $17f^9g^9h^7$

(E) $f^4g^4h^7$

132. If j, k, and m are consecutive integers, listed in order from least to greatest, what is one-third of their sum?

(A) $\frac{j}{2}$

(B) k

(C) $\frac{j}{m}$

(D) $\frac{k}{3}$

(E) $3j$

133. Bill's age is represented by xy, and Michael's age is represented by xyz. Which of the following represents the product of Bill and Michael's ages?

(A) $2xyz$

(B) $2x^2y^2z$

(C) $4xyz$

(D) x^2y^2z

(E) y

134. Which of the following binomials can be multiplied by $p-7$ to get a product of $pq+4p-7q-28$?

(A) $q+4$

(B) $q-4$

(C) $pq-4$

(D) $q-4p$

(E) $4p+q$

135. Which of the following is equal to the product of $4g^3h^2j^6$ and $-11g^5h^2j^8$?

(A) $-11\left(2g^4h^3j^{14}g^4h\right)$

(B) $-22\left(2g^4h^3j^{14}g^4h\right)$

(C) $-44g^4h^3j^{13}g^4h$

(D) $-11\left(4g^4h^2j^{14}g^4h\right)$

(E) $-4\left(11g^4h^3j^{14}g^4h^2\right)$

136. If the ratio $p:q$ is equal to the ratio $q:r$, which of the following is true?

(A) $pr=q$

(B) $\sqrt{q}=pr$

(C) $p^2=qr$

(D) $p=r$

(E) $\sqrt{pr}=\pm q$

137. Which of the following terms is equal to this expression?

$$5m-m+m-m-2m$$

(A) $9m$

(B) $6m$

(C) $4m$

(D) $-9m$

(E) $2m$

138. If j is an even number and k is an odd number, which of the following represents an odd number?

(A) $3jk-7$

(B) $j-2k$

(C) $4j+8k$

(D) $3j-2k$

(E) $j+3k-k$

139. Which of the following is the complete factorization of $c^2+7c+12$?

(A) $(c+12)(c-5)$

(B) $(c+4)(c+3)$

(C) $(c+5)(c+2)$

(D) $(c-3)(c-4)$

(E) $(c+6)(c+2)$

140. Which of the following is the full factorization of $50x^3y^2-10xy^3+40xy$?

(A) $10xy\left(5x^2y+y^2+10\right)$

(B) $10xy\left(5x^2y-y^2+4\right)$

(C) $10xy\left(5x^2-y^2+10\right)$

(D) $5xy\left(10x^2y-y^2+10\right)$

(E) $10x\left(5x^2y-y^2+10y\right)$

141. What is the greatest common factor of $35a^4b^7c^{12}$ and $20a^8b^3c^{10}$?

(A) $7a^4b^3c^{10}$

(B) $5a^4b^7c^{12}$

(C) $10a^4b^3c^{10}$

(D) $5a^4b^3c^{10}$

(E) $10a^8b^8c^{12}$

142. Which of the following is the full factorization of $5h^2-45h+100$?

(A) $(5h-5)(h-4)$

(B) $5(h-5)(h-4)$

(C) $5(h-5)(h+4)$

(D) $(5h+5)(5h+4)$

(E) $(5h-10)(h-2)$

143. Which of the following is NOT a factor of $18m^8n^{11}p^{15}$?

(A) $2m^7n^{11}p^{15}$

(B) $9m^8n^2p^{14}$

(C) $9m^8n^{14}p^{11}$

(D) $6mnp$

(E) $18m^8n^{11}p^{15}$

144. $4w^4x^7y^3\left(7wxy^2-4w^5x^3y^2\right)$ is the full factorization of what expression?

145. Which of the following is the full factorization of $q^2-4q-32$?

(A) $(q-8)(q+4)$

(B) $(q-16)(q+2)$

(C) $(q+32)(q-1)$

(D) $(q+8)(q-4)$

(E) $(q-4)(q+8)$

146. $6xy$ is the greatest common factor of $24x^2y$ and which of the following terms?

(A) $8xy$

(B) $12x$

(C) $24y$

(D) $42xy^2$

(E) $3x^2y$

147. $77a^6b^6-55a^5b^2$ is the product of $11a^4b$ and what binomial?

(A) $5a^2b^5-7ab$

(B) $7a^2b^4-5ab$

(C) $5a^2b^5-7ab^2$

(D) $7a^2b^5+5ab$

(E) $7a^2b^5-5ab$

148. If $12x^7y^8z^9$ is factored out of $48x^8y^9z^{10}+12x^7y^8z^9$, by which of the following binomials will it be multiplied?

(A) $4xyz+12$

(B) $4xyz+1$

(C) $3xyz+1$

(D) $4xy^2z+1$

(E) $4xy^2+12x^8y^9z^{10}$

149. $3(x-3)(x+8)$ is the full factorization of which of the following trinomials?

(A) $3x^2+15x-72$

(B) $3x^2+15x-24$

(C) $x^2+5x-24$

(D) $x^2+15x-72$

(E) $3x^2-5x-72$

150. Which of the following terms is a factor of $28p^{10}q^7r^{12}$?

Select all that apply.

[A] $14p^7q^8r^{12}$

[B] $2p^{11}q^4r$

[C] $7p^9q^5r$

[D] $28pqrv$

[E] $14p^8q^7r^{11}$

151. The trinomial $y^2-16y+64$ is the square of which of the following binomials?

(A) $y+8$

(B) $y-16$

(C) $y+4$

(D) $y-8$

(E) $-y+8$

152. What is the greatest common factor of $27jk^5m^2$ and $54j^{10}k^4m^8$?

(A) $27jk^4m^2$

(B) $9jk^4m^2$

(C) $54jk^4m^2$

(D) $54j^{10}k^5m^8$

(E) $3jkm$

153. Which of the following binomials is a factor of $a^2+11a+28$?

(A) $a+14$

(B) $a+2$

(C) $a-4$

(D) $a+7$

(E) $a-2$

154. Which of the following is NOT a factor of $2u^2-8u-42$?

(A) 1

(B) $u-7$

(C) $u+3$

(D) $u+7$

(E) 2

155. Which of the following is the simplified form of this expression?

$19x+4-3x-8$

(A) $16x-12$

(B) $16x-4$

(C) $22x-4$

(D) $16x+4$

(E) $22x-12$

156. Which of the following is the simplified form of the expression $8x^2y-5xy^2+12xy^2-3x^2y$?

(A) $5x^2y^2+7x^2y$

(B) $3x^2y+9xy^2$

(C) $5x^2y+7xy^2$

(D) $5x^2y^2+7x^2y^2$

(E) $7x^2y^2+5x^2y^2$

157. Which of the following is the simplified form of this rational expression?

$$\frac{4a^7b^5c^8}{20a^3b^2c^5}$$

(A) $\frac{5a^7b^5c^8}{a^3b^2c^5}$

(B) $\frac{1}{5a^4b^3c^3}$

(C) $\frac{5}{a^4b^3c^3}$

(D) $80a^{10}b^7c^{13}$

(E) $\frac{a^4b^3c^3}{5}$

158. Which of the following is equal to this rational expression?

$$\frac{x^2+6x-16}{x^2-9x+14}$$

(A) $\frac{x+8}{z^2-9x+14}$

(B) $\frac{x+8}{x-7}$

(C) $\frac{x^2+6x-16}{x-7}$

(D) $\frac{x-8}{x+7}$

(E) $x+8$

159. Which of the following is the simplified form of this expression?

$9pq-7pq$

(A) $-2pq$

(B) 2

(C) $16pq$

(D) -2

(E) $2pq$

160. Which of the following represents this expression in simplified form?

$12x^2-3x+4-\left(8x^2+2x-8\right)$

(A) $4x^2-x-4$

(B) $4x^2-x-8$

(C) $4x^2-5x+12$

(D) $20x^2-5x+12$

(E) $4x^2-x+12$

161. Which of the following is the simplified form of $\frac{u^2+13u+40}{u^2+8u+15}$?

(A) $\frac{u+3}{u+8}$

(B) $\frac{1}{u+3}$

(C) $u+8$

(D) $\frac{u+8}{u+3}$

(E) $\frac{u^2+13u+40}{u^2+8u+15}$

162. Which of the following is this expression in simplest form?

$8x-7+2y+9x-5y+2$

(A) $x-12+4$

(B) $-x-3y-3$

(C) $17x-7y-5$

(D) $17x+3y-5$

(E) $17x-3y-5$

163. Which of the following is the value of this expression?

$\frac{w-1}{1-w}$

(A) -1

(B) 1

(C) $w-1$

(D) $-\frac{1}{2}$

(E) $\frac{1}{1-w}$

164. Which of the following has the same value as $\frac{9x^8y^3z^2}{3x^4y^2z^2}$?

(A) $\frac{x^8y^3z^2}{3x^4y^2z^2}$

(B) $\frac{3}{x^4yz}$

(C) $9x^4y$

(D) $\frac{x^4y}{3}$

(E) $3x^4y$

165. Which of the following is the rational expression $\frac{p^2+7p+10}{p+5}$ in simplest form?

(A) $p+5$

(B) $\frac{1}{p+2}$

(C) $p+2$

(D) $\frac{1}{p+5}$

(E) $\frac{p^2+7p+10}{p+5}$

166. Which of the following is the simplified form of this rational expression?

$$\frac{8mn}{24n}$$

(A) $3m$
(B) $\frac{3}{m}$
(C) $3mn$
(D) $\frac{m}{3}$
(E) $3n$

167. Which of the following is the simplified form of this expression?

$$(3x-5y)^2+2y-7(x+4)$$

(A) $9x^2-30xy+2y-7x-28$
(B) $9x^2-30xy+25y^2+2y-7x-28$
(C) $3x^2-30xy+25y^2+2y-7x-28$
(D) $9x^2-30xy+25y^2-7x-28$
(E) $3x^2-30xy+2y-7x-28$

168. Which of the following is this expression in simplest form?

$$\frac{y-5}{y^2+2y-35}$$

(A) $\frac{y-5}{y+7}$
(B) $y-5$
(C) $\frac{1}{y+7}$
(D) $y+7$
(E) $\frac{y+7}{y-5}$

169. Which of the following is the value of the expression $\frac{14ab}{2a}$?

(A) $7ab$
(B) $7a$
(C) $\frac{1}{7a}$
(D) $7b$
(E) $\frac{1}{7b}$

170. What is the value of $a+3$ if $a=2$?

(A) -5
(B) 1
(C) $2a$
(D) -1
(E) 5

171. What is the value of this expression if $x=1$, $y=-5$, and $z=8$?

$$7x-5y+4z$$

(A) -8
(B) 103
(C) 64
(D) 36
(E) -71

172. What is the value of $6p^2q(8q-10p)$ if $p=1$ and $q=2$?

(A) 72
(B) -12
(C) 54
(D) 68
(E) -45

173. If $a=3$, $b=2a-7$, and $c=4b+5$, what is the value of $5a-2b+7c$?

(A) 42
(B) 24
(C) -34
(D) 7
(E) 17

174. What is the value of this expression if $w=8$, $x=4$, $y=9$, and $z=10$?

$$\frac{w-x}{y+z}$$

(A) $\frac{3}{2}$
(B) $\frac{5}{17}$
(C) $\frac{8}{17}$
(D) 26
(E) $\frac{4}{19}$

175. What is the value of this expression if $p = 4$, $q = 5$, and $r = 2$?

$$5\left(2p - r \cdot q\right)^2 + pr$$

(A) 24
(B) 15
(C) -2
(D) 28
(E) -31

176. If $x = 5$, $y = x$, and $z = 2y$, what is the value of $3x - 2y + 4z$?

(A) 45
(B) 40
(C) 58
(D) 19
(E) 34

177. If $j = \frac{3}{4}$ and $k = \frac{4}{5}$, what is the value of $2j - 2k$?

(A) $\frac{4}{7}$
(B) $-\frac{1}{10}$
(C) $\frac{9}{16}$
(D) 1
(E) $\frac{3}{2}$

178. What is the value of this expression if $k = -7$, $m = -10$, and $n = 11$?

$$\frac{7k + 4m - 3n}{\left(5k - 4m\right)^2 + 7}$$

(A) $\frac{41}{50}$
(B) $\frac{12}{21}$
(C) $-\frac{61}{16}$
(D) $\frac{5}{17}$
(E) $-\frac{5}{4}$

179. What is the value of $5\left(x^y\right)^z$ if $x = 2$, $y = 1$, and $z = 2$?

(A) 40
(B) 20
(C) 10
(D) 50
(E) 60

180. What is the value of x if $3x - 7 = 8$?

(A) $\frac{1}{3}$
(B) 3
(C) 15
(D) 5
(E) 4

181. Which of the following is a solution to this equation?

$$\left|2u\right| = 10$$

Select <u>all</u> that apply.

[A] 5
[B] 10
[C] 20
[D] -5
[E] -10

182. If $x + y = 12$ and $x - y = -4$, what is the value of y?

(A) 10
(B) -2
(C) 8
(D) 4
(E) -11

183. If $w = y$, what is the value of $\frac{8wy^2}{w^2y}$?

(A) $8w$
(B) $\frac{8}{y}$
(C) 1
(D) 8
(E) y

184. If $\frac{a}{b} = \frac{b}{c}$ and $ac = 49$, which of the following could be the value of b?

Select all that apply.

[A] 49
[B] 7
[C] −7
[D] −49
[E] 14

185. What is the value of p in this equation?

$4p - 8 = -52$

(A) −15
(B) 11
(C) 15
(D) 22
(E) −11

186. If $9h + 12 = 57$, what is 7 less than $4h + 14$?

(A) 27
(B) 34
(C) 45
(D) 14
(E) 20

187. What is the value of w in this proportion?

$\frac{20}{w} = \frac{10}{2}$

(A) 2
(B) 4
(C) 20
(D) 40
(E) 5

188. What is the solution to this equation?

$8j - 3 = 10j + 4$

(A) 3.5
(B) 2
(C) 0.5
(D) −3.5
(E) 3

189. If $2x + 4y = 32$ and $x - 2y = -12$, which of the following is true?

(A) $x + y = 10$
(B) $5x - y = 3$
(C) $8x + y = 26$
(D) $3x - 2y = -11$
(E) $x - y = -2$

190. What is the value of u in this equation?

$-3u + 14 = 8u - 30$

(A) 4
(B) 1
(C) 7
(D) 3
(E) 0

191. If $2q + 5 = 19$, what is the value of $-4q - 5$?

(A) 41
(B) −22
(C) 16
(D) 15
(E) −33

192. If $10a + 2b = 14$ and $-5a - 7b = 11$, what is the value of $7a - (-8b)$?

(A) −10
(B) 22
(C) 6
(D) −3
(E) 14

193. If $3^x = 27$ and $4^y = 16$, what is the value of $7x - 2y$?

(A) 25
(B) 8
(C) 12
(D) 17
(E) 10

194. If $|x| = 9$, what value could x have?

Select all that apply.

[A] 18
[B] 0
[C] 9
[D] -9
[E] -18

195. If $3p - 10q = 4r$, which of the following is equal to the value of p?

(A) $\frac{4r - 10q}{3}$
(B) $\frac{4r + 10q}{3}$
(C) $4r + 10q$
(D) $4r - 10q$
(E) $2qr$

196. If $2x + 6y = 58$ and $5x + 2y = 41$, what is the solution to the system of equations?

(A) $(8, 5)$
(B) $(5, 3)$
(C) $(-8, 5)$
(D) $(4, -3)$
(E) $(5, 8)$

197. If $\frac{2k + 4}{m} = \frac{3k - 13}{m}$, what is the value of $k - 17$?

(A) 0
(B) -17
(C) 17
(D) 15
(E) -8

198. What is the value of h in this equation?

$15h + 12 = 11h - 9$

(A) $-\frac{21}{26}$
(B) $\frac{-21}{4}$
(C) $\frac{5}{6}$
(D) $\frac{12}{17}$
(E) $\frac{26}{21}$

199. If $x + 2y = 22$ and $7x - 3y = 1$, which of the following numbers is NOT between the values of x and y?

(A) 6
(B) 8
(C) 5
(D) 3
(E) 7

200. If $a = b$, what is the value of a in the equation $9a - 2b + 2 = a + 3b$?

(A) $-\frac{3}{2}$
(B) $\frac{2}{11}$
(C) $-\frac{2}{11}$
(D) $\frac{3}{2}$
(E) $-\frac{2}{3}$

201. What is the solution of this inequality?

$4x + 5 < 17$

(A) $x < 3$
(B) $x > 3$
(C) $x < 5\frac{1}{2}$
(D) $x > 5\frac{1}{2}$
(E) $x < 12$

202. If $8w - 14 \geq 26$, which of the following could be the value of w?

(A) 4
(B) 2
(C) 3
(D) 1
(E) 6

203. What is the solution to this inequality?

$-9u + 7 > u + 57$

(A) $u < -8$
(B) $u < -5$
(C) $u > -8$
(D) $u > -5$
(E) $u < 8$

204. What is the solution to the following inequality?

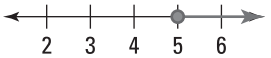
$x + 7 < 14$

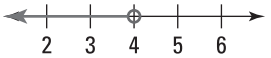
(A) $x > 7$
(B) $x < 7$
(C) $x > 21$
(D) $x < 21$
(E) $x > 28$

205. If $9j - 13 \geq 4j + 17$, which of the following CANNOT be the value of j?

(A) 6
(B) 7
(C) 5
(D) 9
(E) 8

206. Which of the following graphs represents the inequality $x > 4$?

(A) 

(B) 

(C) 

(D) 

(E) 

207. What is the solution to the following inequality?

$12 - 6x < 2x + 12$

(A) $x > 0$
(B) $x < 0$
(C) $x \leq 6$
(D) $x \geq 3$
(E) $x \leq -3$

208. Which of the following is the solution to this inequality?

$8w + 14 - 7w \geq 6w + 3 + 2w$

(A) $w \leq \frac{11}{7}$
(B) $w \geq 2$
(C) $w \leq -2$
(D) $w \geq -\frac{11}{7}$
(E) $w \geq -11$

209. If $10x + 1 < 8x + 31$, then $5 + x$ would have to be less than which number?

(A) 5
(B) 15
(C) −15
(D) −20
(E) 20

210. What is the solution to the following inequality?

$$-\frac{3}{4}h - 2 + \frac{1}{2}h \le 3h - 11$$

(A) $h \le \frac{13}{36}$

(B) $h \le -\frac{13}{36}$

(C) $h \ge -3$

(D) $h \ge \frac{36}{13}$

(E) $h \le 3$

211. Which inequality does the following graph represent?

(A) $x < 1$

(B) $x > 1$

(C) $x \le 1$

(D) $x \ge 1$

(E) $x \le 0$

212. If $q + 2$ is added to the left side of this inequality and $2q - 3$ is added to the right side, and a true inequality is the result, which of the following could NOT be a value of q?

$$-3q - (-2q) + 5 \ge -8q - 2$$

(A) 1

(B) −2

(C) 0

(D) −1

(E) −4

213. If $8x + 13 \ge 2x + 15$, which of the following could be a value of x?

(A) 0

(B) −1

(C) $-\frac{3}{2}$

(D) $\frac{2}{7}$

(E) $\frac{4}{9}$

214. What is the solution to the following inequality?

$$2.5y + 3.7 < 1.7y - 2.1$$

(A) $y > -0.2$

(B) $y < -7.25$

(C) $y < -5.8$

(D) $y > -7.25$

(E) $y < 0.2$

215. If $2.8m + 5.6 - 9.8m \ge 12.2m - 5.2$, then m could NOT be equal to which of the following?

(A) −0.7125

(B) 0

(C) −0.7625

(D) 0.5626

(E) −0.51

216. Two consecutive integers have a sum of 15. What is the greater of the two integers?

(A) 1

(B) 8

(C) 15

(D) 0

(E) 7

217. Two consecutive odd integers have a sum of 28. What is the lower of the two integers?

(A) 13

(B) 15

(C) 28

(D) 2

(E) 17

218. Two consecutive even integers have a sum of 18. What is the product of the two integers?

(A) 10

(B) 100

(C) 80

(D) 8

(E) 18

219. Four more than twice a number is 12 less than 3 times the number. What is the number?

(A) 36
(B) 8
(C) 3
(D) 16
(E) 18

220. If 7 is taken from 5 times a number, the result is 21 more than the number. Which of the following is 11 more than 6 times the number?

(A) 5
(B) 14
(C) 53
(D) 7
(E) 28

221. Fourteen more than twice the sum of a number and 10 is at least 2 more than 10 times the number. Which of the following could be the number?

Select all that apply.

[A] 4
[B] 3
[C] 9
[D] 6
[E] 7

222. Twice the sum of a number and 6 is no more than 3 times the number. Which of the following CANNOT be the number?

(A) 12
(B) 11
(C) 13
(D) 16
(E) 15

223. Jason is 3 years older than Bethany. The sum of their ages is 81. What is Jason's age?

(A) 39
(B) 42
(C) 31
(D) 40
(E) 28

224. Casey's age is 7 years less than twice Kellie's age. In 12 years, Kellie's age will be 10 greater than Casey's current age. How old was Kellie 8 years ago?

(A) 1
(B) 9
(C) 11
(D) 2
(E) 12

225. If half a number is increased by twice the number, the result is 6 more than 2 times half the number. Which of the following is 8 less than 5 times the number?

(A) 4
(B) 28
(C) 2
(D) 27
(E) 12

226. If 11 less than a number is not as much as 3 less than a third of the number, which of the following could NOT have a value that is 26 higher than the number?

(A) 37
(B) 39
(C) 35
(D) 28
(E) 24

227. The product of two numbers is 15. The sum of one of the numbers and 14 is 2 more than 5 times the number. What is the other number?

(A) 3
(B) 5
(C) 15
(D) 12
(E) 2

228. Two numbers are opposites. Their product is −81. The higher number is 3 more than twice y. What is the value of y?

(A) −3
(B) 9
(C) −6
(D) −243
(E) 3

229. Which of the following is a counterexample to this statement?

If four less than the square of a number is more than five, the number is greater than three.

(A) −2
(B) 1
(C) −4
(D) 0
(E) −1

230. John has 8 less than twice as many four-wheeler wheels attached to his four wheelers as Elizabeth has to hers. However, they have the same number of four wheelers. How many four wheelers does John have?

(A) 16
(B) 4
(C) 2
(D) 8
(E) 3

231. Two numbers have a sum of 17. The greater number minus the smaller number is 7. What is the greater number?

(A) 12
(B) 24
(C) 5
(D) 22
(E) 10

232. A classroom with 28 students has 4 more boys than girls. How many girls are in the classroom?

(A) 12
(B) 16
(C) 4
(D) 28
(E) 24

233. The price of student tickets to a school play is $3, and the price of non-student tickets is $5. David sold 61 tickets for a total price of $251. How many student tickets did David sell?

(A) 34
(B) 22
(C) 17
(D) 27
(E) 81

234. Alex has only $10 and $20 bills in his wallet. The total number of bills in his wallet is 18, and the amount of money in the wallet is $290. How many $20 bills does Alex have?

(A) 4
(B) 220
(C) 70
(D) 7
(E) 11

235. In 17 years, Danforth's age will be 1 more than three times what it is now. How old will Danforth be in 30 years?

(A) 12

(B) 42

(C) 38

(D) 35

(E) 8

236. Is the relation $\{(2,5), (3,7), (4,1), (8,1)\}$ a function?

(A) The relation is a function because no element of the range is paired with more than one element of the domain.

(B) The relation is a function because no element of the domain is paired with more than one element of the range.

(C) The relation is NOT a function because 1 is paired with both 4 and 8.

(D) The relation is NOT a function because no element of the domain is paired with more than one element of the range.

(E) The relation is NOT a function because 2 is paired only with 5.

237. Does the following table represent a function?

x	*y*
–8	7
–2	4
3	8
–2	14

(A) Yes

(B) No

238. Which of the following relations is a function?

(A) $\{(-8,7), (-3,1), (7,6), (7,8)\}$

(B) $\{(1,2), (3,4), (5,6)\}$

(C) $\{(0,0), (2,2), (0,2), (2,0)\}$

(D) $\{(1,2), (1,3)\}$

(E) $\{(0,1), (1,2), (1,3)\}$

239. Which of the following relations is NOT a function?

(A) $\{(-1,-3), (2,4), (5,10)\}$

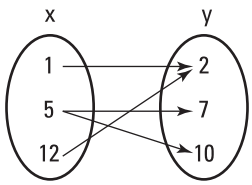
(B) $\{(0,1), (1,2), (2,3), (3,4)\}$

(C) $\{(5,5)\}$

(D) $\{(1,1), (2,2), (3,3), (4,4), (5,5)\}$

(E) $\{(-4,5), (2,6), (8,3), (2,7), (5,10)\}$

240. Does the following mapping represent a function?



(A) It does represent a function because each number in the domain is paired with at least one number in the range.

(B) It does represent a function because each number in the range is paired with at least one number in the domain.

(C) It does NOT represent a function because 2 is paired with both 1 and 12.

(D) It does NOT represent a function because 5 is paired with both 7 and 10.

(E) It does represent a function because no number is listed more than once in the left column.

241. If $f(x) = x - 2$, what is the value of $f(3)$?

(A) 1

(B) 4

(C) 3

(D) 0

(E) 2

242. For the following function, what is the value of $g(7)$?

$g(x) = x^2 - 2x + 14$

(A) 7
(B) 77
(C) 63
(D) 35
(E) 49

243. If $p(x) = -4x^3 + 9x - 15$, what is the value of $p(2)$?

(A) -29
(B) -32
(C) 29
(D) 2
(E) 32

244. If $f(x) = 2x + 7$ and $g(x) = -x - 1$, what is the value of $f(4) - g(10)$?

(A) 15
(B) 26
(C) -11
(D) 4
(E) 9

245. If $q(x) = 1 - 3x$ and $r(x) = 5x - 1$, what is the product of $q(-6)$ and $r(-9)$?

(A) 19
(B) -270
(C) -874
(D) -46
(E) 471

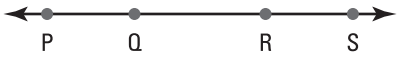
246. For the two following functions, what is the value of $f(g(1))$?

$f(x) = 8x^2 - 2x + 12$
$g(x) = 3x + 5$

(A) 508
(B) 415
(C) 29
(D) 580
(E) 18

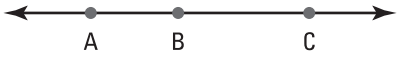
Geometry

247. Which of the following is NOT a labeled point on the line in this diagram?



(A) P
(B) Q
(C) R
(D) S
(E) T

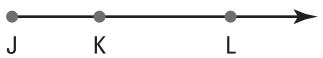
248. Which of the following qualifies as a name of this line, based solely on what is presented?



Select <u>all</u> that apply.

[A] $\overleftrightarrow{AB}$
[B] $\overleftrightarrow{BC}$
[C] $\overleftrightarrow{CD}$
[D] $\overleftrightarrow{B}$
[E] $\overleftrightarrow{CA}$

249. Which of the following qualifies as a name of this ray?



Select <u>all</u> that apply.

[A] $\overleftrightarrow{KJ}$
[B] $\overleftrightarrow{LJ}$
[C] $\overleftrightarrow{JK}$
[D] $\overleftrightarrow{KL}$
[E] $\overleftrightarrow{JL}$

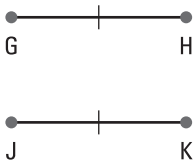
250. What is the difference between a ray and a line?

(A) A line has at least one endpoint.
(B) A ray has two endpoints.
(C) A ray is infinite in only one direction.
(D) A line is infinite in only one direction.
(E) A line has two dimensions.

251. A segment is named using which of the following?

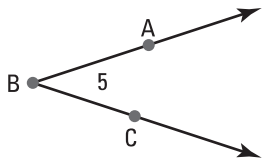
(A) Its midpoint
(B) One endpoint
(C) Its distance
(D) Its area
(E) Both endpoints

252. What is indicated by the vertical marks on the two following line segments?



(A) They are opposite sides of the same polygon.
(B) They are diameters of the same circle.
(C) They have unequal measures.
(D) They are congruent.
(E) Their ratio is π.

253. Which of the following does NOT qualify as a name of the angle below?



Select <u>all</u> that apply.

[A] $\angle ABC$
[B] $\angle ACB$
[C] $\angle 5$
[D] $\angle A$
[E] $\angle B$

254. When can an angle NOT be named by its vertex alone?

(A) Any angle can always be named by its vertex alone.

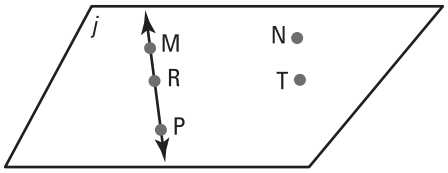
(B) No angle can ever be named by its vertex alone.

(C) An angle cannot be named by its vertex alone when its vertex is the vertex of more than one presented angle.

(D) An angle can be named by its vertex alone when the vertex is a letter from *A* to *D*.

(E) An angle can be named by its vertex alone only if the angle is obtuse.

255. Which of the following could be a name for the plane below?



Select all that apply.

[A] Plane *j*

[B] Plane *MNR*

[C] Plane *MRP*

[D] Plane *RNT*

[E] Plane *PTN*

256. How many points are on a plane?

(A) 0

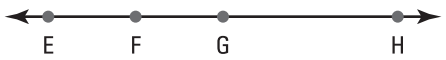
(B) 2

(C) 3

(D) 4

(E) ∞

257. Which of the following statements is NOT true about the line shown below?



(A) $\overline{FG}$ is a segment on the line.

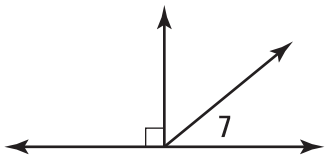
(B) The measure of $\overline{EF}$ plus the measure of $\overline{FH}$ is equal to the measure of $\overline{EH}$.

(C) The line's endpoints are *E* and *H*.

(D) $\overline{EF}$ is part of $\overline{EG}$.

(E) *F* is a point on the line.

258. Which type of angle is $\angle 7$?



(A) Acute

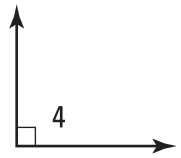
(B) Obtuse

(C) Right

(D) Straight

(E) Reflex

259. What is the measure of $\angle 4$ in the following diagram?



(A) 360°

(B) 45°

(C) 0°

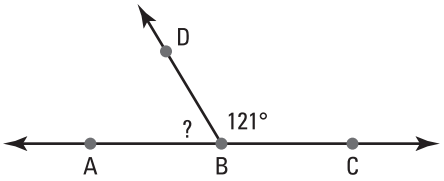
(D) 180°

(E) 90°

260. If two angles are supplementary, what is the sum of their measures?

(A) 360°
(B) 45°
(C) 0°
(D) 180°
(E) 90°

261. In the following diagram, what is the measure of $\angle ABD$?

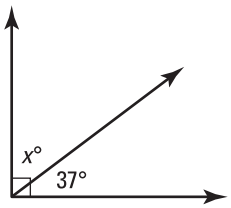


(A) 121°
(B) 31°
(C) 59°
(D) 61°
(E) 149°

262. If $\angle DEF$ and $\angle GHI$ are complementary angles and the measure of $\angle GHI$ is 54°, what is the measure of $\angle DEF$?

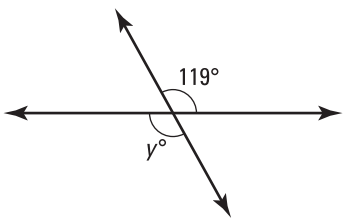
(A) 36°
(B) 126°
(C) 54°
(D) 34°
(E) 326°

263. What is the value of x in the following diagram?



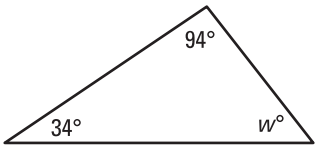
(A) 143
(B) 53
(C) 233
(D) 37
(E) 63

264. What is the value of y in the following diagram?



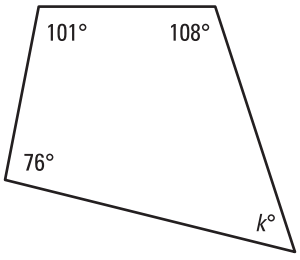
(A) 61
(B) 119
(C) 29
(D) 151
(E) 74

265. What is the value of w in the following diagram?



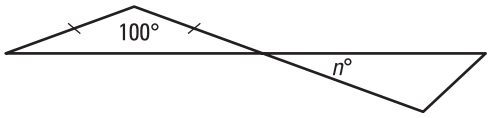
(A) 52
(B) 128
(C) 142
(D) 38
(E) 146

266. What is the value of k in the following diagram?



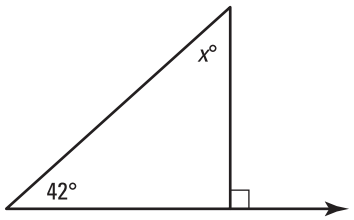
(A) 15
(B) 105
(C) 285
(D) 35
(E) 75

267. What is the value of n in the following diagram?



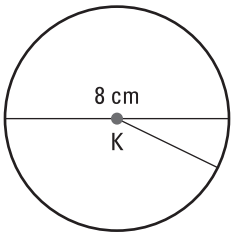
(A) 80
(B) 140
(C) 120
(D) 65
(E) 40

268. What is the value of x in the following diagram?



(A) 48
(B) 103
(C) 42
(D) 46
(E) 138

269. Circle K has a diameter of 8 cm. What is the circumference of Circle K?

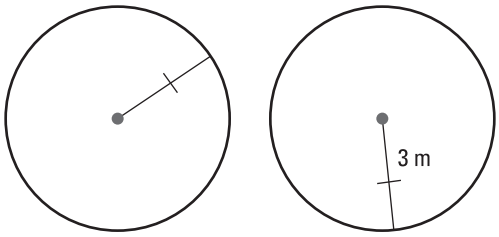


(A) 8π cm
(B) 64π cm
(C) 8 cm
(D) 64 cm
(E) 4π cm

270. A circle has a circumference of 20π in. What is the radius of the circle?

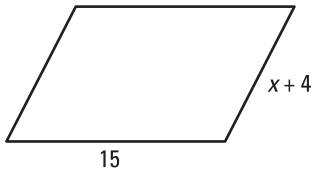
(A) 4.5 in.
(B) 15 in.
(C) 10 in.
(D) 20 in.
(E) 17.5 in.

271. The two circles have congruent radii. If the radius of one circle is 3 m, what is the area of the other circle, rounded to the nearest hundredth?



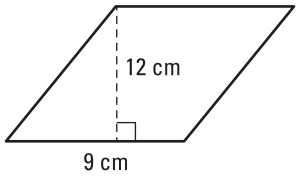
(A) 6π m^2
(B) 18π m^2
(C) 14.31 m^2
(D) 28.26 m^2
(E) 18.35 m^2

272. The perimeter of the parallelogram is 50 units. What is the value of x?



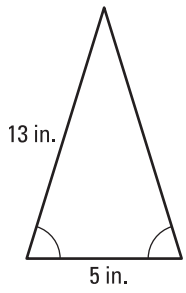
(A) 10
(B) 7
(C) 12
(D) 15
(E) 6

273. A base of the parallelogram is 9 cm. The corresponding height is 12 cm. What is the area of the parallelogram?



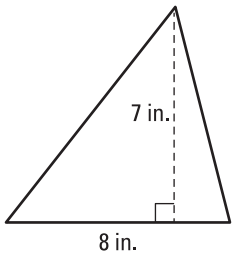
(A) 21 cm^2
(B) 108 cm^2
(C) 1.3 cm^2
(D) 81 cm^2
(E) 144 cm^2

274. What is the perimeter of the triangle?



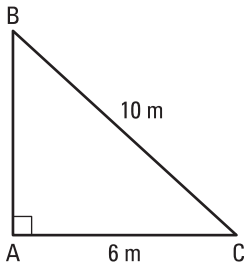
(A) 36 in.
(B) 26 in.
(C) 28 in.
(D) 31 in.
(E) 65 in.

275. What is the area of the triangle?



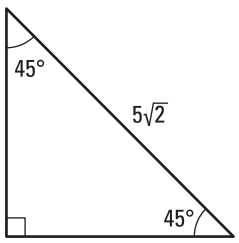
(A) 15 in.^{2}
(B) 1 in.^{2}
(C) 14 in.^{2}
(D) 56 in.^{2}
(E) 28 in.^{2}

276. For right triangle ABC, what is the measure of side $\overline{AB}$?



(A) 64 m
(B) 36 m
(C) 18 m
(D) 4 m
(E) 8 m

277. What is the area of the right triangle?



(A) 25 square units
(B) 12.5 square units
(C) 6.25 square units
(D) 7.5 square units
(E) 10 square units

278. A 30°-60°-90° triangle has a hypotenuse of 16 micrometers. What is the triangle's area?

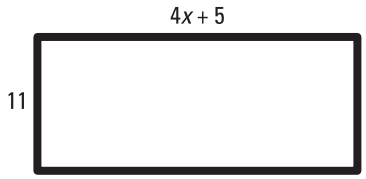
(A) $32\sqrt{3}$ square micrometers
(B) $32\sqrt{2}$ square micrometers
(C) $8\sqrt{3}$ square micrometers
(D) 32 square micrometers
(E) 12 square micrometers

279. A triangle has sides of 24 dm, 10 dm, and 26 dm. Is the triangle a right triangle?

(A) Yes

(B) No

280. Jamie has a rectangular garden that has a length of $4x + 5$ units and a width of 11 units. If the perimeter of the garden is 64 units, how many units is the length of the garden?



(A) 22

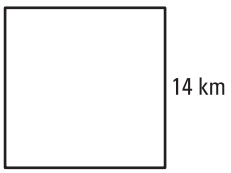
(B) 4

(C) 21

(D) 17

(E) 8

281. What is the perimeter of the square?



(A) 28 km

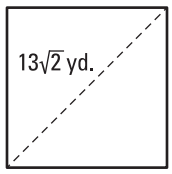
(B) 56 km

(C) 42 km

(D) 196 km

(E) 140 km

282. What is the area of the square?



(A) 13 yd.^{2}

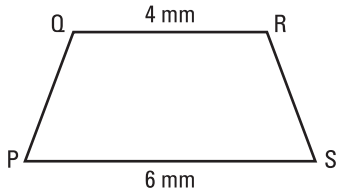
(B) $169\sqrt{2}$ yd.^{2}

(C) 26 yd.^{2}

(D) 169 yd.^{2}

(E) 52 yd.^{2}

283. The trapezoid has base measures of 4 mm and 6 mm. The area of the trapezoid is 15 mm^2. What is the height of the trapezoid?



(A) 10 mm

(B) 7 mm

(C) 3 mm

(D) 6 mm

(E) 4.5 mm

284. Every square qualifies as which of the following?

Select <u>all</u> that apply.

[A] Quadrilateral

[B] Parallelogram

[C] Rectangle

[D] Trapezoid

[E] Rhombus

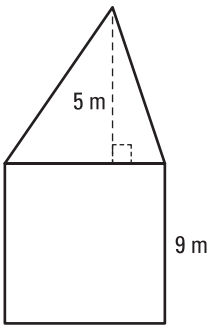
285. The area of a square is 100 m^2. What is the square's perimeter?

(A) 20 m
(B) 60 m
(C) 75 m
(D) 40 m
(E) 25 m

286. A side of an equilateral triangle is 14 ft. What is the perimeter of the triangle?

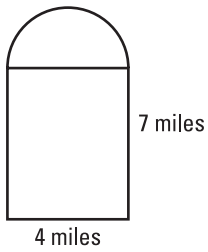
(A) 84 ft.
(B) 12.5 ft.
(C) 196 ft.
(D) 27.5 ft.
(E) 42 ft.

287. In the diagram, a triangle and a square share two vertices. What is the area of the composite figure formed by the triangle and the square?



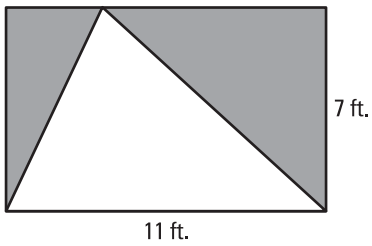
(A) 103.5 m^2
(B) 81 m^2
(C) 22.5 m^2
(D) 58.5 m^2
(E) 108 m^2

288. In the figure, the semicircle has points that are the vertices of a rectangle, and the semicircle and rectangle share a side. What is the area of the composite figure formed by the semicircle and rectangle, rounded to the nearest hundredth?



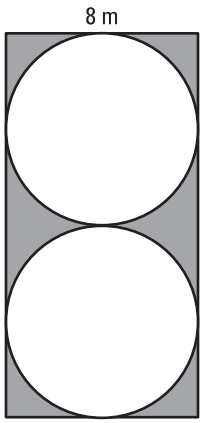
(A) 28 square miles
(B) 21.72 square miles
(C) 14 square miles
(D) 34.28 square miles
(E) 37 square miles

289. In the diagram, the white triangle shares two vertices with a rectangle and has its other vertex at a side of the rectangle. What is the area of the shaded region?

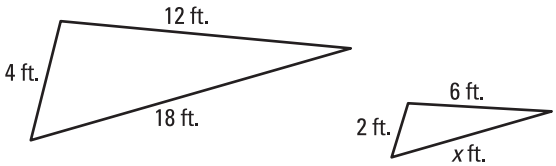


(A) 77 $ft.^2$
(B) 38.5 $ft.^2$
(C) 35 $ft.^2$
(D) 115.5 $ft.^2$
(E) 28.7 $ft.^2$

290. In the diagram, two circles are inscribed in a rectangle, and the circles share a point. What is the exact area of the shaded region? Write your answer.



291. The two triangles in the following diagram are similar. What is the value of x?

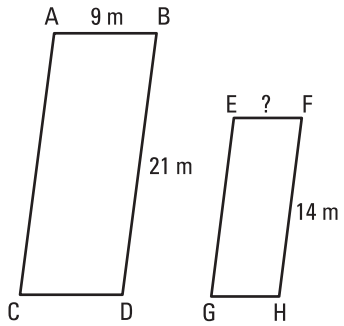


(A) 9
(B) 2
(C) $\frac{1}{3}$
(D) 36
(E) 3

292. Quadrilaterals 1 and 2 are similar. A side of Quadrilateral 1 is 16 dm, and that side's corresponding side in Quadrilateral 2 is 4 dm. What is the scale factor from Quadrilateral 1 to Quadrilateral 2?

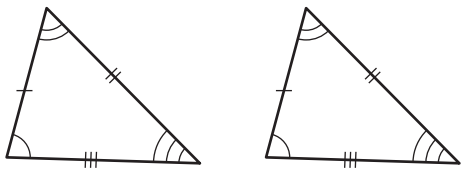
(A) 4
(B) $\frac{1}{2}$
(C) $\frac{1}{4}$
(D) 2
(E) 8

293. The two parallelograms in the following diagram are similar. $\overline{BD}$ corresponds to $\overline{FH}$, and $\overline{AB}$ corresponds to $\overline{EF}$. What is the measure of $\overline{EF}$?



(A) $\frac{2}{3}$ m
(B) 126 m
(C) 12 m
(D) $\frac{1}{6}$ m
(E) 6 m

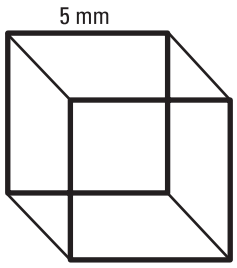
294. The two triangles in the following diagram are congruent.



Which of these statements is true? Select all that apply.

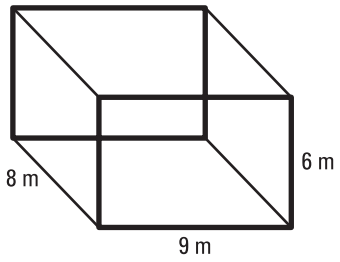
[A] All pairs of corresponding angles are congruent.
[B] All pairs of corresponding sides are congruent.
[C] All corresponding parts are congruent.
[D] The two triangles' perimeters are equal.
[E] All pairs of corresponding angles are congruent, but none of the pairs of corresponding sides are necessarily congruent.

295. What is the surface area of the following cube?



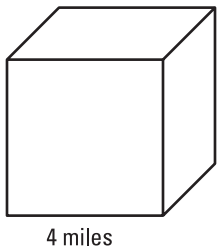
(A) 125 mm^2
(B) 150 mm^2
(C) 25 mm^2
(D) 100 mm^2
(E) 50 mm^2

296. The following figure is a right rectangular prism. What is its surface area?



(A) 266 m^2
(B) 144 m^2
(C) 246 m^2
(D) 432 m^2
(E) 348 m^2

297. What is the volume of the following cube?

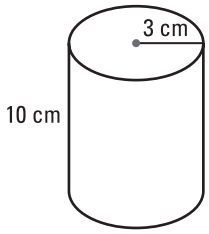


(A) 64 cubic miles
(B) 16 cubic miles
(C) 32 cubic miles
(D) 24 cubic miles
(E) 128 cubic miles

298. A triangular prism has two triangular bases that both have an area of 19 square units. The prism has a height of 8 units. What is the volume of the prism?

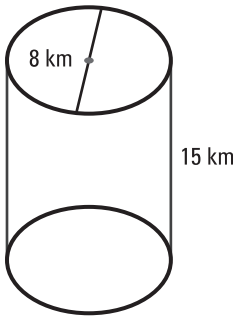
(A) 604 cubic units
(B) 76 cubic units
(C) 27 cubic units
(D) 152 cubic units
(E) 228 cubic units

299. What is the surface area of the following right cylinder?



(A) 9π cm^2
(B) 78π cm^2
(C) 90π cm^2
(D) 30π cm^2
(E) 270π cm^2

300. What is the surface area of the following right cylinder?

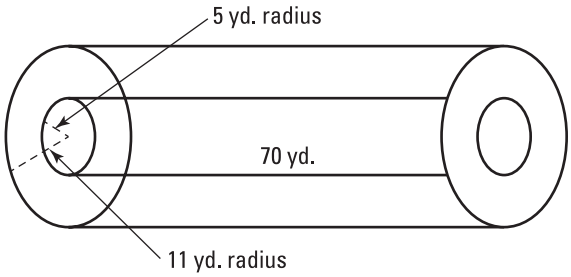


(A) 152π km^2
(B) 304π km^2
(C) 76π km^2
(D) 480π km^2
(E) 240π km^2

301. A right cylinder has a height of 10 micrometers. The cylinder's volume is 490π cubic micrometers. What is the cylinder's radius?

(A) 49 micrometers
(B) 14 micrometers
(C) 21 micrometers
(D) 7 micrometers
(E) 35 micrometers

302. In the following diagram, a cylinder is on the interior of another cylinder. The bases of the interior cylinder are parts of the bases of the larger cylinder. The centers of the bases are shared by the cylinders. How much volume of the larger cylinder is outside of the smaller cylinder?

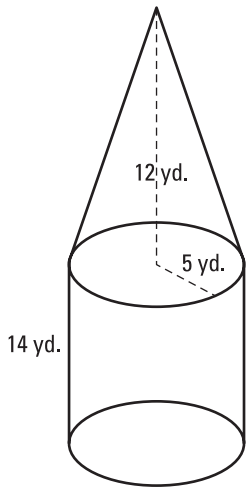


(A) $8{,}470\pi$ yd.^{3}
(B) $1{,}750\pi$ yd.^{3}
(C) $6{,}720\pi$ yd.^{3}
(D) 96π yd.^{3}
(E) 1,190 yd.^{3}

303. A cone has a lateral area of 54π cm^2 and a base area of 100π cm^2. How many square centimeters is the surface area of the cone?

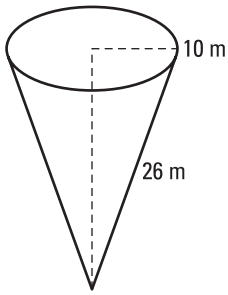
(A) 254π cm^2
(B) 46π cm^2
(C) $5{,}400\pi$ cm^2
(D) 208π cm^2
(E) 154π cm^2

304. The following composite figure is formed by a right cone and right cylinder that share a base. What is the surface area of the composite figure?



(A) 65π yd.^{2}
(B) 190π yd.^{2}
(C) 230π yd.^{2}
(D) 255π yd.^{2}
(E) 305π yd.^{2}

305. What is the volume of the following cone?

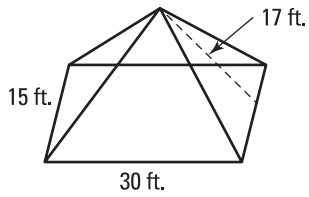


(A) 500π m^3
(B) 800π m^3
(C) $2{,}400\pi$ m^3
(D) 333π m^3
(E) $19{,}200\pi$ m^3

306. How many times greater is the volume of a cylinder than a cone that shares its base and has the same height?

(A) $\frac{1}{3}$
(B) 2
(C) 3
(D) r
(E) π

307. The following pyramid has a rectangular base. What is the surface area of the pyramid?



(A) 1,215 ft.^{2}
(B) 1,980 ft.^{2}
(C) 1,125 ft.^{2}
(D) 450 ft.^{2}
(E) 900 ft.^{2}

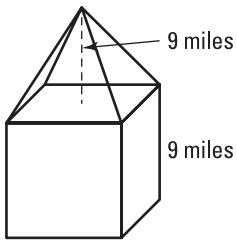
308. What is the surface area of a right pyramid with a base area of 92.38 m^2 and a lateral area of 124.19 m^2?

(A) 308.95 m^2
(B) 333.14 m^2
(C) 216.57 m^2
(D) 340.76 m^2
(E) 248.38 m^2

309. By what value must a prism's volume be multiplied to get the volume of a pyramid that shares its base and has the same height?

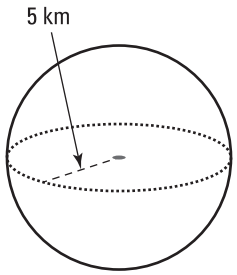
(A) 3
(B) 9
(C) $\frac{1}{9}$
(D) 1.5
(E) $\frac{1}{3}$

310. The following composite figure is formed by a square pyramid on top of a cube. The pyramid and cube share a base. The height of the pyramid is 9 miles, and the height of the cube is 9 miles. What is the volume of the composite figure?



(A) 729 cubic miles
(B) 972 cubic miles
(C) 81 cubic miles
(D) 648 cubic miles
(E) 1,458 cubic miles

311. What is the surface area of the following sphere?

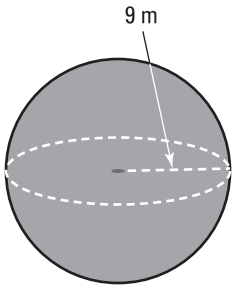


(A) 50π km^2
(B) 25π km^2
(C) 166.7π km^2
(D) 100π km^2
(E) 200π km^2

312. A sphere has a surface area of 36π hm^2. What is the diameter of the sphere?

(A) 6 hm
(B) 3 hm
(C) 12 hm
(D) 15 hm
(E) 36 hm

313. What is the volume of the following sphere?



(A) 972π m
(B) 144π m
(C) 72π m
(D) 288π m
(E) 546.75π m

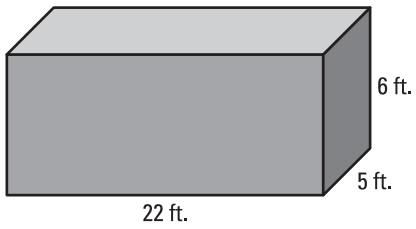
314. A spherical bubble has a surface area of 100 km^2. What is the volume of the bubble?

(A) 300π km^3
(B) $\frac{100\pi}{3}$ km^3
(C) $\frac{500\pi}{3}$ km^3
(D) 100π km^3
(E) 30π km^3

315. What is the lateral area of a cube in which each side is 2 inches?

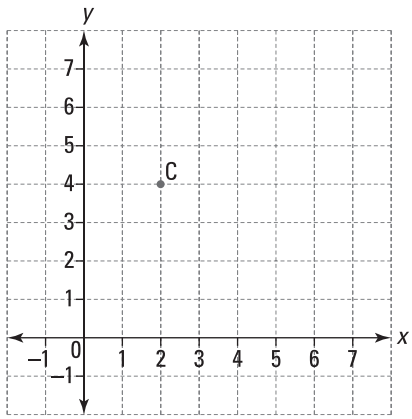
(A) 20 in.^{2}
(B) 24 in.^{2}
(C) 12 in.^{2}
(D) 16 in.^{2}
(E) 8 in.^{2}

316. Mrs. Gray is using the following rectangular prism storage tank to store liquid nitrogen. How much liquid nitrogen can fit in the tank?



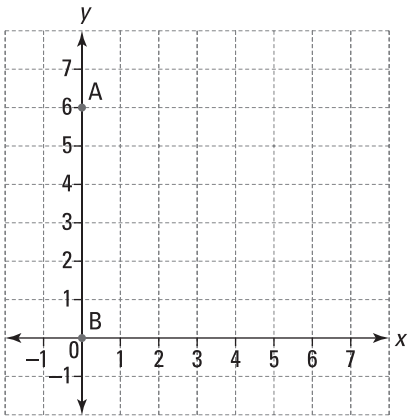
(A) 132 ft.^{3}
(B) 330 ft.^{3}
(C) 660 ft.^{3}
(D) 324 ft.^{3}
(E) 544 ft.^{3}

317. What ordered pair is represented by point *C*?



(A) $(2, 4)$
(B) $(4, 2)$
(C) $(2, 2)$
(D) $(4, 4)$
(E) $\left(\frac{2}{4}, \frac{4}{2}\right)$

318. What is the distance between points *A* and *B*?

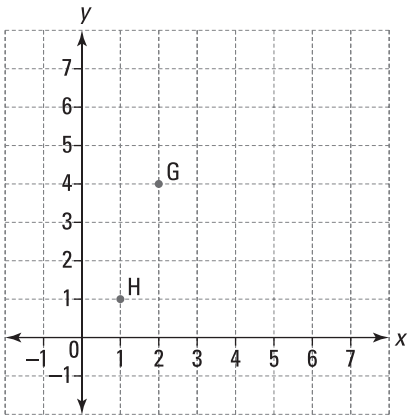


(A) 36
(B) 3
(C) 6
(D) 12
(E) 8

319. What is the distance between the points $(2, 8)$ and $(4, 10)$ on the coordinate plane, rounded to the nearest tenth?

(A) 7.3
(B) 2.83
(C) 8
(D) 4.2
(E) 2.8

320. What is the midpoint between points G and H on the following coordinate plane?



(A) $(3,5)$

(B) $\left(\frac{3}{2},\frac{5}{2}\right)$

(C) $(5,3)$

(D) $\left(\frac{5}{2},\frac{3}{2}\right)$

(E) 3.16

321. What is the midpoint between the points $(-5,14)$ and $(7,-4)$ on the coordinate plane?

(A) $(-1,5)$

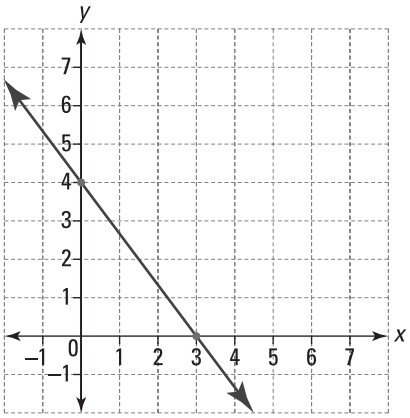
(B) $(5,1)$

(C) $(-5,-1)$

(D) $(1,5)$

(E) $(-1,-5)$

322. What is the slope of the following line?



(A) $\frac{3}{4}$

(B) $-\frac{4}{3}$

(C) $\frac{3}{8}$

(D) $\frac{4}{3}$

(E) $-\frac{3}{4}$

323. What is the slope of a line containing the points $(2,5)$ and $(17,9)$?

(A) $\frac{15}{4}$

(B) $-\frac{4}{15}$

(C) $\frac{4}{15}$

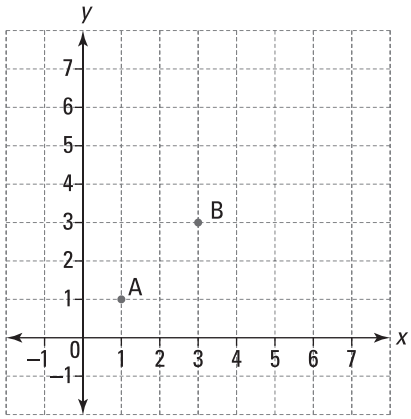
(D) $-\frac{15}{4}$

(E) $-\frac{4}{11}$

324. What is the slope of the graph of $y=-\frac{3}{16}x+75$? Write your answer.

325. Which of the following is true about a line containing points A and B?

Select all that apply.



[A] The line represents all ordered pairs that make its equation true.

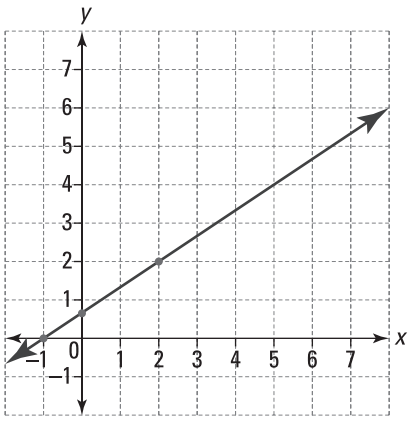
[B] The line represents the ordered pairs that make its equation false.

[C] The ordered pair $(1, 1)$ is a solution to the equation of the line.

[D] The ordered pair $(3, 3)$ is NOT a solution to the equation of the graph.

[E] The ordered pair $(3, 3)$ is a solution to the equation of the line.

326. Which of the following is a solution to the equation of the graphed line?



(A) (2, 2)

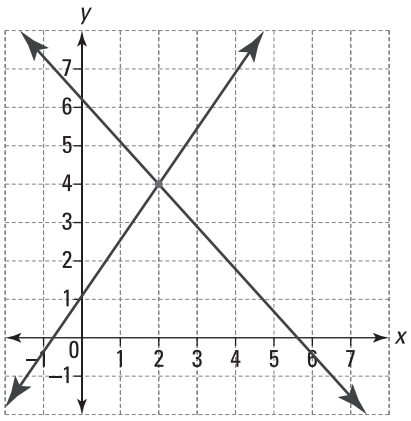
(B) (0, −1)

(C) (1, 3)

(D) (5, 0)

(E) (1, 2)

327. What is the only point that is a solution to both equations that are graphed that follows?



(A) (2, 1)

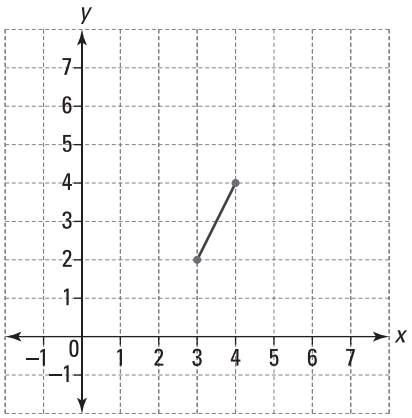
(B) (2, 4)

(C) (3, −1)

(D) (−3, 5)

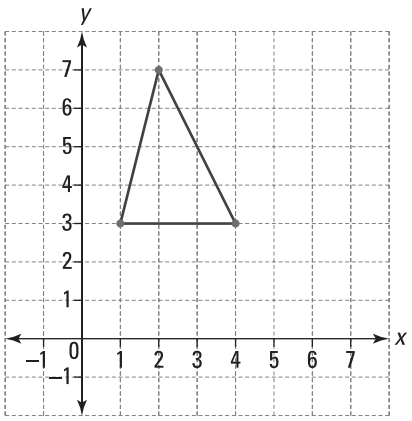
(E) (1, −10)

328. What will be the endpoints of the following segment if it is translated 5 units right and 7 units down?



(A) (8, −5) and (−1, −3)
(B) (−2, 9) and (−3, 11)
(C) (8, −5) and (9, −3)
(D) (−2, 9) and (9, −3)
(E) (5, −7) and (−5, 7)

329. Which of the following will be a vertex of the following triangle if it is reflected over the *y*-axis?

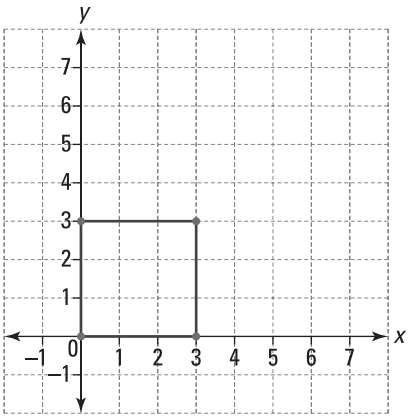


(A) (1, 3)
(B) (−4, 3)
(C) (−3, 4)
(D) (3, −1)
(E) (2, −7)

330. If a polygon in the coordinate plane is reflected over the *x*-axis, which of the following can be done to the coordinates of the vertices of the polygon to get the coordinates of its new vertices?

(A) Keeping the same *y*-coordinates and multiplying the *x*-coordinates by −1
(B) Multiplying both coordinates by −1
(C) Switching the coordinates
(D) Keeping the same *x*-coordinates and multiplying the *y*-coordinates by −1
(E) Getting the reciprocals of the coordinates

331. What will be the ordered pair for the top right vertex of the following square if it is dilated by a scale factor of 7?

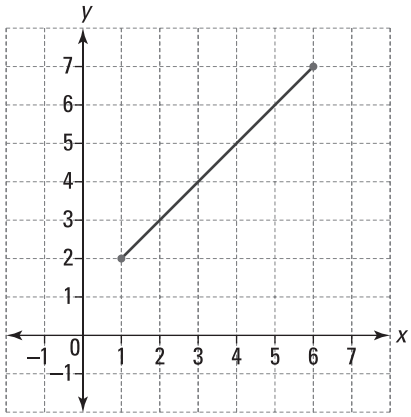


(A) (3, 7)
(B) (9, 9)
(C) (7, 1)
(D) $(\frac{3}{7}, \frac{3}{7})$
(E) (21, 21)

332. Which aspect of a figure on the coordinate plane always changes as a result of a dilation, unless the scale factor is 1?

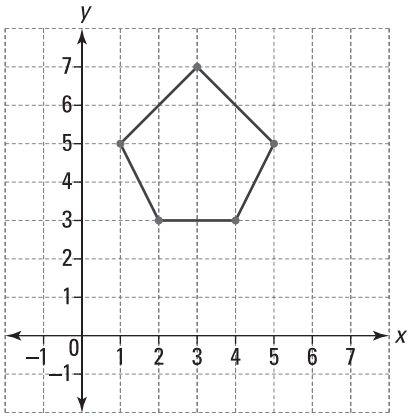
(A) Shape
(B) Position
(C) Side of the *x*-axis
(D) Side of the *y*-axis
(E) Size

333. Which of the following will be an endpoint of the following segment if the segment is rotated 90° counterclockwise about the origin?



(A) (6, −7)
(B) (−7, 6)
(C) (1, −2)
(D) (−2, −1)
(E) (1, 7)

334. Which of the following will NOT be a vertex of the following pentagon if it's rotated 180° counterclockwise about the origin?



(A) (−1, −5)
(B) (−3, −7)
(C) (−3, −4)
(D) (−2, −3)
(E) (−5, −5)

Statistics

335. The following table shows the weights of three members of the same family. How many more pounds is Jeffrey than Drew?

Player	*Weight (Pounds)*
Drew	175
Jeffrey	348
William	217

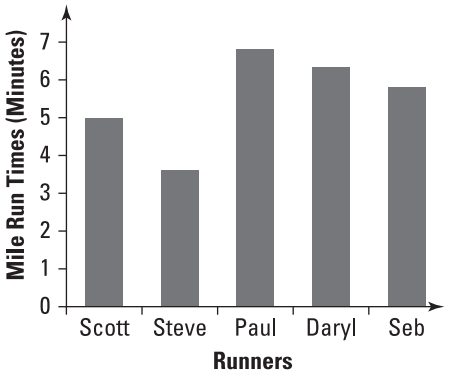
(A) 131
(B) 72
(C) 173
(D) 170
(E) 137

336. The following table indicates the numbers of cars sold in a year by various salespeople. How many of the salespeople sold more cars than Nancy?

Salesperson	Cars Sold
Brad	12
Nancy	458
Jason	17
Willy	754
Donald	542
Sarah	152
Susan	75
Luke	74

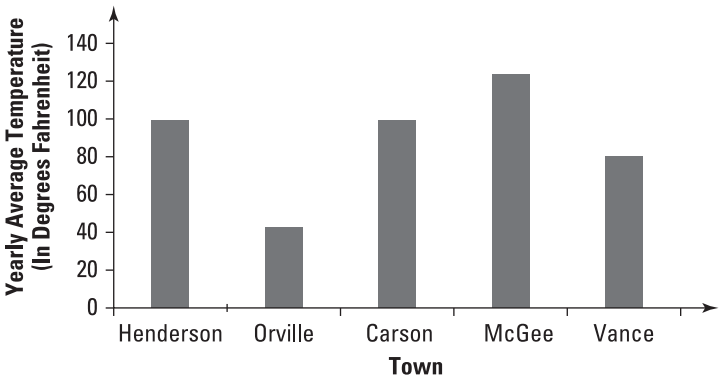
(A) 2
(B) 5
(C) 458
(D) 296
(E) 742

337. The following bar graph shows the mile-run times of five runners. Who ran the second best time of the five competitors?



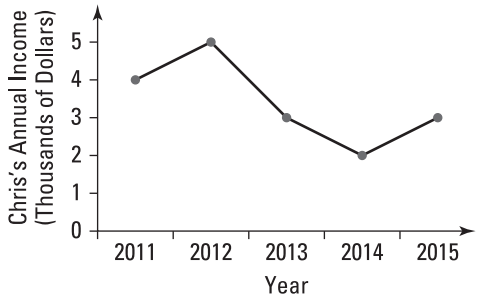
(A) Daryl
(B) Steve
(C) Paul
(D) Seb
(E) Scott

338. Of the five towns listed in the following bar graph, which has the lowest yearly average temperature?



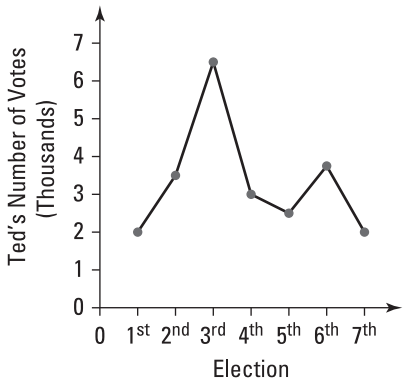
(A) Henderson
(B) Vance
(C) McGee
(D) Orville
(E) Carson

339. The following line graph shows Chris's annual income for various years. How many of the years listed did Chris have a higher income than his income of 2014?



(A) Three
(B) Four
(C) Zero
(D) Two
(E) One

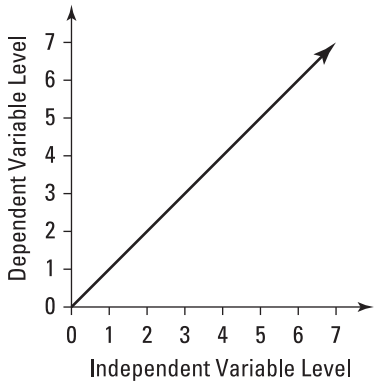
340. The following line graph shows the numbers of votes Ted received in different elections. In which election did Ted receive the greatest drop in votes from the previous election?



(A) Fourth
(B) Second
(C) Fifth
(D) Seventh
(E) Third

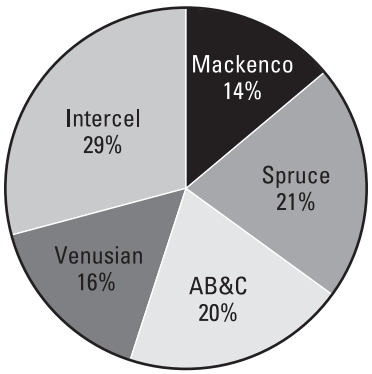
341. The following line graph shows the relationship between an independent variable and a dependent variable. According to the graph, which of the following statements is true?

Select all that apply.



[A] The correlation between the independent variable and the dependent variable is positive.
[B] The correlation between the independent variable and the dependent variable is negative.
[C] No correlation exists between the independent variable and the dependent variable.
[D] As the independent variable increases, the dependent variable increases.
[E] As the independent variable increases, the dependent variable decreases.

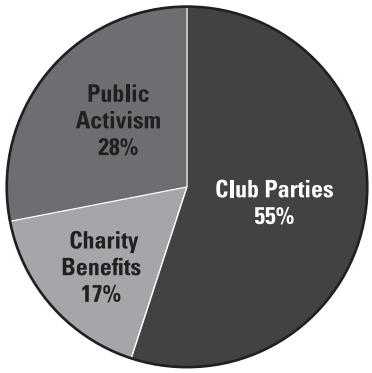
342. The following circle graph indicates the percentages of the population of Spencerton that use each of the phone companies in the town. If the population of Spencerton is 1,700, how many residents use either Mackenco or AB&C?



Percents of Spencerton Population Using Various Phone Companies

(A) 238
(B) 595
(C) 578
(D) 612
(E) 340

343. According to the following circle graph, how much more of a percent of the Squirrel Club's total budget goes to parties than the sum of its public activism and charity benefit budgets?



Squirrel Club Budget

(A) 45%
(B) 55%
(C) 100%
(D) 10%
(E) 11%

344. Which of the following numbers is represented by this stem and leaf plot?

Stem	Leaf
1	4 5 8
2	2 5
3	1 7 9
4	0

Key: 3|5 = 35

(A) 16
(B) 35
(C) 41
(D) 21
(E) 37

345. Which of the following numbers is NOT represented by the following stem and leaf plot?

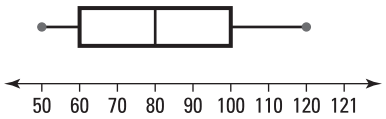
Select all that apply.

Stem	Leaf
0	1 2 4 8
2	0 4 5 7
5	0 1 2 5 8
7	1 1 2
8	5

Key: 8|5 = 850

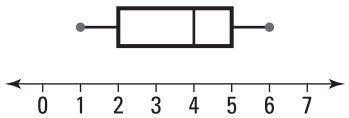
[A] 40
[B] 140
[C] 400
[D] 71
[E] 840

346. What is the highest number in the set of data represented by the following box and whisker plot?



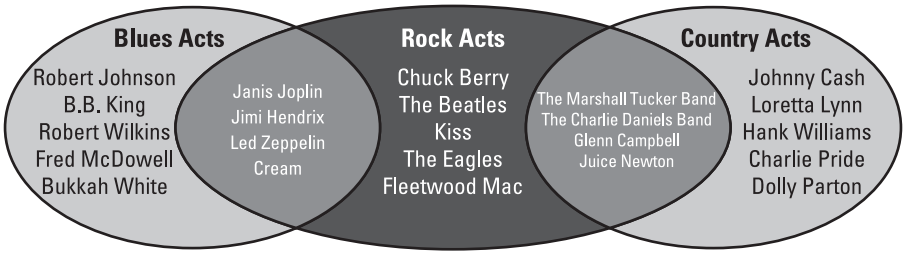
(A) 121
(B) 120
(C) 100
(D) 50
(E) 60

347. From the lowest number to the highest number, how much of the number line does the data in the following box and whisker plot represent?



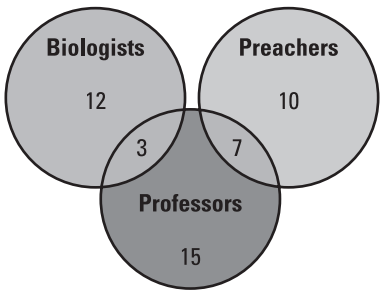
(A) 3
(B) 4
(C) 6
(D) 5
(E) 7

348. Which of the following is indicated by the following Venn diagram?



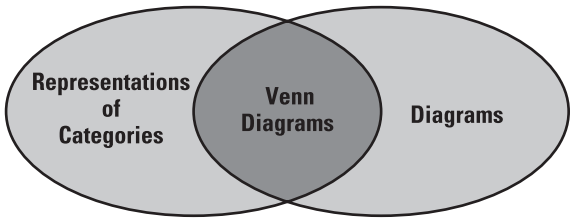
(A) Kiss is a country act.
(B) Led Zeppelin is NOT a rock act.
(C) Robert Wilkins is a rock act and a blues act.
(D) Jimi Hendrix is NOT a blues act.
(E) The Marshall Tucker Band is both a country act and a rock act.

349. The following Venn diagram shows the numbers of people in a club who are in at least one of three given occupations. According to the Venn diagram, how many people in the club are professors or preachers but not biologists?



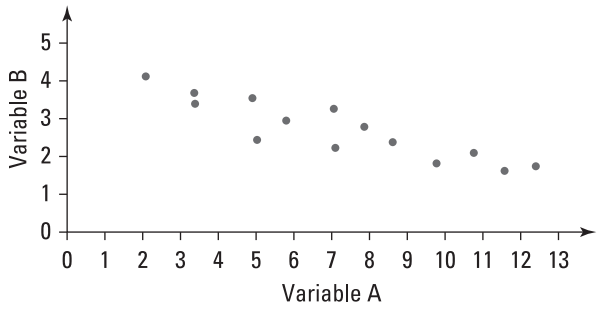
(A) 25
(B) 10
(C) 32
(D) 15
(E) 7

350. Which of the following is indicated by the following Venn diagram?



(A) Venn diagrams are NOT diagrams.
(B) Representations of categories CANNOT be diagrams.
(C) Venn diagrams are both diagrams and representations of categories.
(D) Venn diagrams are NOT representations of categories.
(E) Diagrams CANNOT be representations of categories.

351. Which of the following is NOT indicated by the following scatterplot?



(A) A negative correlation exists between Variable A and Variable B.

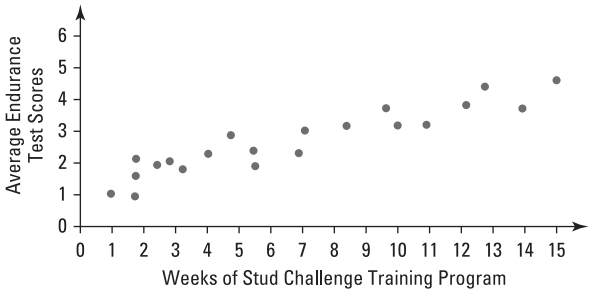
(B) As Variable A increases, Variable B tends to decrease.

(C) The higher Variable B is, the lower Variable A tends to be.

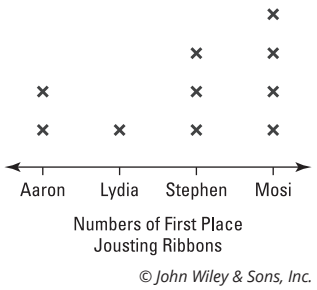
(D) Some increases in Variable A are accompanied by increases in Variable B.

(E) An increase in Variable A is always accompanied by an increase in Variable B.

352. Is the correlation between amount of time in the Stud Challenge Training Program and average endurance test score a positive or negative correlation?



353. According to the following line plot, how many more first place jousting ribbons did Mosi win than Aaron?



(A) 4

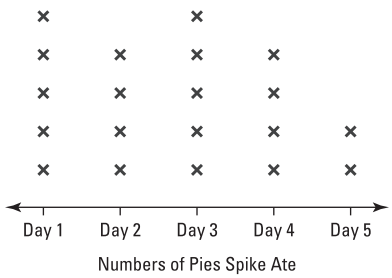
(B) 2

(C) 3

(D) 1

(E) 6

354. The following line plot shows the number of pies Spike ate on certain days. What is the simplest form of the ratio of the number of pies Spike ate on Day 4 to the number of pies he ate on Days 2 and 5 combined?



(A) $\frac{4}{6}$

(B) $\frac{2}{3}$

(C) $\frac{6}{4}$

(D) $\frac{2}{1}$

(E) $\frac{3}{2}$

355. What is the mean of a data set containing two numbers, 4 and 10?

(A) 6

(B) 7

(C) 14

(D) 40

(E) 2.5

356. What is the mean of the following set of data?

0 8 12 8

(A) 8

(B) 12

(C) 7

(D) 4

(E) 0

357. What is the mean of the following set of data?

4 8 11 14 3 26

(A) 23

(B) 9.5

(C) 26

(D) 11

(E) 3

358. The following data figures are the scores Kathleen made on all five trigonometry tests of the current term. All of the tests are worth the same number of points. What does Kathleen need to make on the next test to have a test average of 70?

54 80 61 72 58

(A) 94

(B) 70

(C) 78

(D) 95

(E) 67

359. What is the mean of the first seven prime numbers?

(A) $8\frac{2}{7}$

(B) $8\frac{1}{7}$

(C) 6

(D) $3\frac{6}{7}$

(E) 8

360. What is the mean of the data represented by the following table?

Player	Quiz Score
Ware	92
Leigh Ann	84
Christian	92
Elizabeth	96
Meredith	82

(A) 92
(B) 14
(C) 89.2
(D) 96
(E) 82

361. What is the median of the following set of data?

1 2 3

(A) 2
(B) 1
(C) 3
(D) 6
(E) $\frac{1}{6}$

362. What is the median of the following set of data?

7 12 15 8 1

(A) 14
(B) 8.6
(C) 1
(D) 15
(E) 8

363. What is the median of the following set of data?

9 4 1 20 5 1

(A) $6\frac{2}{3}$
(B) 19
(C) 4.5
(D) 1
(E) 9

364. Malloy made the following scores in four games of golf. What is the median of his scores for the four games?

72 80 68 74

365. What is the median of the first five composite numbers?

(A) 8
(B) 6
(C) 7.4
(D) 5.8
(E) 4.2

366. What is the median of the set of data represented by the following stem and leaf plot?

Stem	Leaf
0	1 2 4 8
2	0 4 5 7
5	0 1 2 5 8
7	1 1 2
8	5

Key: 5|2 = 52

(A) 71
(B) 84
(C) 39.76
(D) 50
(E) 85

367. What is the mode of a set of data?

(A) The sum of the numbers in a data set, divided by the number of numbers in the set

(B) The number that appears the most often in the set

(C) The middle number or the mean of the two middle numbers of a data set, in terms of value

(D) The difference between the greatest and the smallest numbers in a data set

(E) A number far greater or far less than the general vicinity of most of the numbers in a data set

368. What is the mode of the following set of data?

1 3 4 3

(A) 2.75

(B) 2

(C) 1

(D) 4

(E) 3

369. What is the mode of the following set of data?

7 7

(A) 0

(B) 7

(C) 14

(D) 49

(E) 1

370. Rick scored the following numbers of points for ten basketball games. What is the mode of the numbers of points Rick scored for the ten games?

12 14 12 6 12 14 18 28 14 12

(A) 12

(B) 14

(C) 13

(D) 14.2

(E) 22

371. The numbers of students in seven classrooms are 24, 31, 17, 19, 31, 24, and 31. What is the mode of the numbers of students in the seven classrooms?

(A) 24

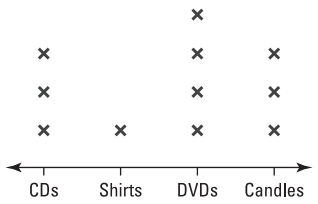
(B) 25.3

(C) 31

(D) 14

(E) 48

372. What is the mode of the set of data represented by the following line plot?



Numbers of Items Bridgette Bought Yesterday

(A) 1

(B) 3

(C) 5

(D) $2\frac{3}{4}$

(E) 4

373. What is the range of a set of data? Select all that apply.

[A] The middle number or the mean of the two middle numbers in the set

[B] The numerical distance covered by the set

[C] The difference between the highest number and the lowest number in the set

[D] The number that could be subtracted from the highest number to get the lowest number

[E] The number that could be added to the lowest number in the set to get the highest number

374. What is the range of the following set of data?

0 10

(A) 10
(B) 5
(C) 0
(D) 1
(E) 100

375. What is the range of the following set of data?

2 5 3 8 4 11 4 9

(A) 4.5
(B) 4
(C) 5.75
(D) 11
(E) 9

376. Sophia got six speeding tickets in one week. The following set of data reflects the speeds at which she was clocked driving to get the tickets. What is the range of the six speeds Sophia was caught driving?

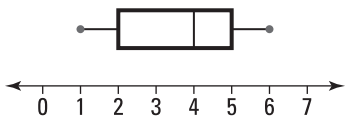
91 104 122 85 98 158

(A) 101
(B) 73
(C) 109.667
(D) 158
(E) 85

377. Prince Rogers Nelson passed away at the age of 57. What is the range of all of the ages, in terms of whole numbers of years, Prince ever was?

(A) 57
(B) 29.5
(C) 28.5
(D) 0
(E) 1

378. What is the range of the set of data represented by the following box and whisker plot?



(A) 4
(B) 2
(C) 5
(D) 1
(E) 6

379. If a quarter is flipped in a way that will cause it to land randomly, what is the probability that it will land on heads?

(A) $\frac{2}{1}$

(B) $\frac{1}{2}$

(C) $\frac{1}{4}$

(D) $\frac{4}{1}$

(E) $\frac{2}{2}$

380. A bag contains 3 orange marbles, 4 blue marbles, and 2 yellow marbles. If Melissa randomly pulls a marble out of the bag, what is the probability that the marble will be blue?

(A) $\frac{4}{9}$

(B) $\frac{9}{9}$

(C) $\frac{2}{9}$

(D) $\frac{1}{3}$

(E) $\frac{9}{4}$

381. A teacher writes the names of five different students on small pieces of paper and puts them in a hat. One of the names is Joseph. The other four names are different. If the teacher randomly pulls a name out of the hat, what is the probability that it will be Joseph?

(A) $\frac{2}{5}$

(B) $\frac{1}{5}$

(C) $\frac{5}{5}$

(D) $\frac{5}{1}$

(E) $\frac{5}{2}$

382. A number wheel has the natural numbers 1 through 8 on it. Each number covers the same amount of room that is met by the arrow. If someone spins the wheel and the arrow randomly lands on a number, what is the probability that the number will be 3?

(A) $\frac{8}{1}$

(B) $\frac{8}{8}$

(C) $\frac{1}{4}$

(D) $\frac{1}{8}$

(E) $\frac{3}{8}$

383. A die has six faces, and each face displays a different natural number from 1 to 6. The die is rolled at a table in a way that it lands randomly on a face. What is the probability that the die will land on 4 or 5?

(A) $\frac{1}{6}$

(B) $\frac{1}{2}$

(C) $\frac{2}{3}$

(D) $\frac{4}{5}$

(E) $\frac{1}{3}$

384. The city of Barnville has 1,548 residents. Twenty-two of the residents have the last name Johnson, and 14 of the residents have the last name Dean. If the mayor of Barnville randomly picks a resident to be on his float in the town's Family Day parade, what is the probability that the person he picks will have a last name of Johnson or Dean?

(A) $\frac{22}{774}$

(B) $\frac{1}{43}$

(C) $\frac{1}{1,548}$

(D) $\frac{36}{43}$

(E) $\frac{5}{1,548}$

385. Beth, Michelle, Tekeeta, and Pam are four friends who bought raffle tickets for a drawing. Others also bought raffle tickets for the same drawing. The following table shows the numbers of raffle tickets bought by each of the four friends as well as the number bought by others. One ticket will be randomly drawn to decide the winner. What is the probability that the winner will be Beth, Michelle, Tekeeta, or Pam?

Participant	Number of Raffle Tickets
Beth	4
Michelle	1
Tekeeta	7
Pam	3
Others	875

(A) $\frac{1}{178}$

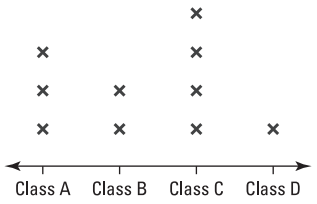
(B) $\frac{3}{890}$

(C) $\frac{1}{15}$

(D) $\frac{3}{178}$

(E) $\frac{3}{875}$

386. The numbers of students running for student council in each of four third-period classes in a small hallway of a school are indicted by the following line plot. Thirty-seven students not represented by the line plot are also running. Based on only this much information, what is the probability that one of the students in Class B or Class D will get elected to be on student council?



(A) $\frac{3}{40}$

(B) $\frac{3}{37}$

(C) $\frac{1}{40}$

(D) $\frac{3}{47}$

(E) $\frac{1}{3}$

387. Madison bought a bag of pool balls. Each ball is marked with a number from 1 to 15, and each number is used only once. The bag also contains a cue ball, which has no number on it. The balls are randomly arranged in the bag. If Madison reaches into her new bag of pool balls and randomly pulls one out, what is the probability that she will pull the 8 ball or the cue ball?

(A) $\frac{1}{15}$

(B) $\frac{2}{15}$

(C) $\frac{1}{8}$

(D) $\frac{1}{4}$

(E) $\frac{2}{5}$

388. A basket contains plastic chips of equal size and shape, and each chip has a different prime number that's less than 20 painted on it. If John randomly pulls a chip out of the bag, what is the probability that it will have a number on it that's NOT 5 or 7?

(A) $\frac{3}{4}$

(B) $\frac{1}{4}$

(C) $\frac{1}{8}$

(D) $\frac{3}{7}$

(E) $\frac{1}{7}$

389. If a number wheel displaying only composite numbers greater than 6 and less than 30 is spun, what is the probability that the wheel will land on a composite number between 17 and 25?

(A) $\frac{1}{4}$

(B) $\frac{5}{17}$

(C) $\frac{1}{3}$

(D) $\frac{5}{16}$

(E) $\frac{1}{5}$

390. A skydiver who has lost control of his parachute will happen to randomly land in a rectangle that is divided into ten smaller rectangular sections of equal length and width. Each section is labeled with a different number, as shown in the following figure. The section where most of the skydiver's body is when he lands will determine the official section of his landing. What is the probability that the skydiver will land in the section labeled with the number 8?

(A) $\frac{1}{8}$

(B) $\frac{1}{5}$

(C) $\frac{10}{10}$

(D) $\frac{1}{10}$

(E) $\frac{3}{10}$

391. A probability is always greater than or equal to one number and less than or equal to another number. What are the two numbers?

(A) -1 and 1

(B) 0 and 2

(C) $-\infty$ and ∞

(D) 0 and ∞

(E) 0 and 1

392. If a day of the week is chosen at random, what is the probability that it will be Wednesday or Saturday?

(A) $\frac{1}{7}$

(B) $\frac{5}{7}$

(C) $\frac{2}{7}$

(D) $\frac{7}{2}$

(E) $\frac{7}{5}$

393. If a natural number from 1 to 12 is chosen at random, what is the probability that the number will be 4 or an odd number?

(A) $\frac{1}{12}$

(B) $\frac{7}{12}$

(C) $\frac{1}{2}$

(D) $\frac{2}{7}$

(E) $\frac{5}{12}$

394. If a natural number from 1 to 20 is chosen at random, what is the probability that it will be 7 or a multiple of 5?

(A) $\frac{1}{5}$

(B) $\frac{1}{4}$

(C) $\frac{5}{12}$

(D) $\frac{4}{7}$

(E) $\frac{12}{5}$

395. A pet store has 8 snakes, 5 dogs, 2 birds, and 3 cats. If a child has one of those animals randomly selected by a computer, what is the probability that the animal will NOT be a dog or a bird?

(A) $\frac{7}{18}$

(B) $\frac{18}{11}$

(C) $\frac{7}{11}$

(D) $\frac{11}{18}$

(E) $\frac{11}{7}$

396. If a penny is flipped twice, what is the probability that it will land on tails both times?

(A) $\frac{1}{4}$

(B) $\frac{1}{8}$

(C) $\frac{3}{8}$

(D) $\frac{1}{2}$

(E) $\frac{3}{4}$

397. If a penny is flipped twice, what is the probability that it will land on heads the first time and tails the second time?

(A) $\frac{1}{8}$

(B) $\frac{1}{4}$

(C) $\frac{3}{8}$

(D) $\frac{7}{8}$

(E) $\frac{2}{3}$

398. A weatherman accurately determined that there's a $\frac{3}{7}$ chance of rain in Jackson today and that if there is rain in the city today, there will be a $\frac{4}{9}$ probability of lightning. There will be no lightning if there is no rain. What is the probability that there will be lightning in Jackson today?

(A) $\frac{55}{63}$

(B) $\frac{12}{27}$

(C) $\frac{1}{9}$

(D) $\frac{8}{63}$

(E) $\frac{4}{21}$

399. Two dice each have six faces, with each face having a different number from 1 to 6 on it. What is the probability of getting a sum of 7 from a random roll of those dice?

(A) $\frac{2}{11}$

(B) $\frac{1}{6}$

(C) $\frac{1}{11}$

(D) $\frac{7}{12}$

(E) $\frac{2}{11}$

400. Robert is a contestant on the game show Price of Fortune. He has a 72% chance of making it to the second round. If he makes it to the second round, he will have a 41% chance of reaching the final round. If he makes it that far, he will have a 21% chance of winning a brand-new blender. What is the probability that Robert will win the brand-new blender?

(A) 29.52%

(B) 61,992%

(C) 86.1%

(D) 8.61%

(E) 6.1992%

401. What is 3.45×10^3 in standard form?

(A) 3,450

(B) 345

(C) 34.5

(D) 0.03450

(E) 0.003450

402. Which of the following is the standard form of 9.452137×10^5?

(A) 945.2137

(B) 0.00009452137

(C) 0.0009452137

(D) 945,213.7

(E) 9,452.137

403. Which of the following expresses 2.54802×10^7 in standard form?

(A) 25,480.2

(B) 0.00000025480200

(C) 0.25480200

(D) 0.000025480200

(E) 25,480,200

404. What is 8.0534×10^{-2} in standard form?

(A) 0.0080534

(B) 0.00080534

(C) 805.34

(D) 0.080534

(E) 80,534

405. Which of the following represents 1.24×10^{-3} in standard form?

(A) 0.00124

(B) 0.124

(C) 0.000124

(D) 124

(E) 1,240

406. What is the standard form of 7.248094×10^{-5}?

(A) 0.0007248094

(B) 0.7248094

(C) 724,809.4

(D) 0.00007248094

(E) 7,248,094

407. Which of the following expresses 6.889357×10^8 in standard form?

(A) 688,935,700

(B) 0.00000006889357

(C) 0.0000006889357

(D) 68,893,57

(E) 6,889.357

408. What is 3.211×10^{-7} in standard form? Write your answer.

409. Which of the following is equal to 6.433052×10^{1} in standard form?

(A) 0.6433052
(B) 64,330.52
(C) 0.06433052
(D) 643.3052
(E) 64.33052

410. The Andromeda galaxy has approximately 1.0×10^{12} stars. Which of the following expresses that figure in standard form?

(A) 1,000,000,000,000
(B) 0.000000000001
(C) 0.00000000001
(D) 100,000,000,000
(E) 1,000,000,000

411. What is 827 in scientific notation?

(A) 8.27×10^{-2}
(B) 8.27×10^{1}
(C) 8.27×10^{2}
(D) 82.7×10^{2}
(E) 827×10^{-2}

412. What is 0.48 in scientific notation?

(A) 4.8×10^{1}
(B) 4.8×10^{2}
(C) 0.48×10^{0}
(D) 48.0×10^{-1}
(E) 4.8×10^{-1}

413. Which of the following is the scientific notation form of 7,942.0548?

(A) 0.79420548×10^{4}
(B) 7.9420548×10^{3}
(C) 79.420548×10^{3}
(D) 7.9420548×10^{-3}
(E) 7.9420548×10^{-2}

414. Which of the following is 0.00056 in scientific notation?

(A) 5.6×10^{4}
(B) 0.56×10^{-3}
(C) 5.6×10^{5}
(D) 5.6×10^{-4}
(E) 56.0×10^{-4}

415. Which of the following represents 839.002 in scientific notation?

(A) 83.9002×10^{1}
(B) 839.002×10^{-2}
(C) 8.39002×10^{-2}
(D) 8.39002×10^{2}
(E) 8.39002×10^{3}

416. What is 0.00003544 in scientific notation?

(A) 3.544×10^{6}
(B) 3.544×10^{-5}
(C) 35.44×10^{4}
(D) 3.544×10^{-6}
(E) 354.4×10^{-2}

417. A centigram is 1.0×10^{-5} kilograms. Write the number of kilograms in a centigram in standard form.

418. Which of the following represents 50,000,000 in scientific notation?

(A) 5.0×10^{-7}
(B) 5.0×10^{6}
(C) 50.0×10^{6}
(D) 5.0×10^{-6}
(E) 5.0×10^{7}

419. What is the product of 5.647×10^{8} and 6.287×10^{4} in standard form?

(A) 35,502,689,000,000
(B) 200,483,684,783
(C) 35,502,689
(D) 20,048,368,478,300
(E) 0.002048368478

420. What is the scientific notation form of the product of 3.53451×10^5 and 8.2457×10^3?

(A) $2.9144509107 \times 10^{-9}$

(B) 2.9144509107×10^8

(C) 29144509.107×10^5

(D) 2.9144509107×10^9

(E) 29.144509107×10^2

421. Which of the following expresses the product of 15,527 and 2,548,054 in scientific notation?

(A) $3.9563634458 \times 10^{10}$

(B) 3.9563634458×10^1

(C) 3.9563634458×10^8

(D) $39.563634458 \times 10^{11}$

(E) 395.63634458×10^9

422. The statistics and probability section of a practice test has 88 questions. What is the scientific notation form of that number?

(A) 8.8×10^3

(B) 0.88×10^2

(C) 88.0×10^0

(D) 8.8×10^1

(E) 8.8×10^{-1}