MATH SUMMER ASSIGNMENTS 2024

Melissa Fenster

Name _____

Summer assignments for students entering grade 8 Algebra:

Students must complete practice problems to the best of their ability prior to the first day of the 2024-2025 school year. The packet will be due no later than Friday, August 23 and time will be given to review solutions in class the following week. HSPT Practice (Quantitative Skills-30 minutes and Mathematics – 45 minutes) needs to be completed as well.

Note: Calculators will rarely be used during the first trimester to improve mental math skills. By practicing calculations manually, students strengthen their ability to estimate and solve problems without relying on external tools.

Have a safe and happy summer!

Name_____ Date_____

Solve.   *Answers*

1. $x - 7 = -13$ 2. $15 - 3c = 3$ 1. _____

3. One cell phone plan charges $20 per month plus $0.15 per minute used.   2. _____
   A second cell phone plan charges $35 per month plus $0.10 per minute
   used. Write and solve an equation to find the number of minutes you   3. _____
   must talk to have the same cost for both calling plans.
                                                                            _____

4. a. Write the formula for the area of a triangle.   4. a._____

   b. Solve the formula for h.   b._____

   c. The area of a triangle is 36 square inches.   c._____
      Use the new formula to find the height of
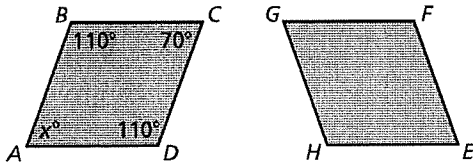   the triangle in inches and in centimeters.   _____

12 in.
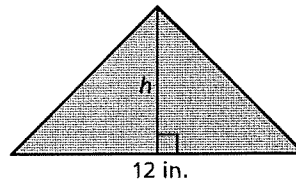
In Exercises 5 and 6, use the following information.   5. _____

Parallelograms $ABCD$ and $EFGH$ are congruent.   6. _____

                                                                            7. _____

                                                                            _____

                                                                            _____

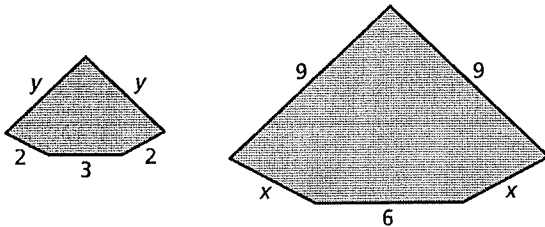5. Which side of $EFGH$ is congruent to side AD?   8. _____

6. Find the measure of $\angle E$.   _____

7. A triangle has vertices $A(-1, 3)$, $B(0, 2)$, and $C(-4, 0)$. Find   _____
   the coordinates of the triangle after translating it up 2 units and   9. _____
   reflecting it in the x-axis.
                                                                            _____

8. The two figures are similar. Find the values of x and y, and the ratios
   (larger to smaller) of the perimeters and areas.

9. An original piece of artwork is 3 feet by 2.5 feet. A reprint of the
   artwork is 6 inches by 5 inches. Are the pieces similar? If so, what
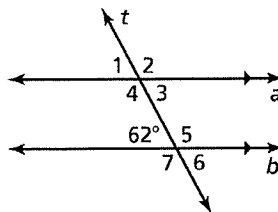   is the ratio of their corresponding side lengths?

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10. Use the figure to find the measure of $\angle 1$.
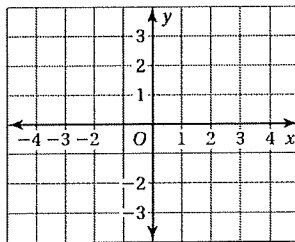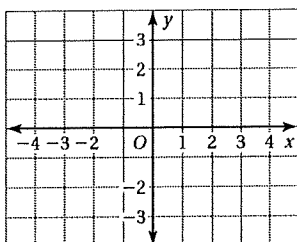
11. Find the measure of each angle of a regular polygon with 8 sides.

12. You want to determine if two triangles are similar. What is the minimum number of angles you need to measure to determine if the triangles are similar? Explain.

Find the slope and the *y*-intercept of the graph of the linear equation. Then sketch its graph.

13. $y = 3x - 2$

14. $2x + 4y = 6$

15. The equation $5x + 2y = 20$ represents the cost for a family to attend a play where x is the number of adults and y is the number of children. Find the intercepts and interpret the meaning of each one.

Write an equation of the line in slope-intercept form.

16. the line passing through $(0, 1)$ and $(-4, 5)$

17. the line with slope -2.5 and passing through $(2, 1.5)$

18. Recall that $0°C = 32°F$ and $100°C = 212°F$.

   a. Using x for degrees Celsius and y for degrees Fahrenheit, find an equation of the line passing through $(0, 32)$ and $(100, 212)$.

   b. What is the slope of the line? Explain what the slope means in terms of degrees Celsius and degrees Fahrenheit.

   c. What is the y-intercept of the line? Explain what the y-intercept means in terms of degrees Celsius and degrees Fahrenheit.

Answers

10. _____

11. _____

12. _____

   _____

   _____

13. _____

   _____

   __See left.__

14. _____

   _____

   __See left.__

15. _____

   _____

   _____

   _____

16. _____

17. _____

18. a. _____

   b. _____

   _____

   _____

   c. _____

   _____

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Solve the system.   *Answers*

19. $y = 3x + 4$ **20.** $y - 4x = 3$ **21.** $y = \dfrac{1}{2}x - 1$ 19. _____

      $y - x = 2$ $2y = 8x + 5$ 20. _____

                                                          $3x - y = -4$ 21. _____

22. It costs \$0.05 to send a text message and \$0.10 to send a picture on
your cell phone. You spend \$4 and send five more text messages than   22. _____
pictures. How many text messages x and pictures y did you send?

                                                                              _____

23. Draw a mapping diagram of the   23. ____See left.____
set of ordered pairs.

    $(2, 3), (3, 5), (4, 1), (5, 2)$ 24. a.___See left.___

                                                               b._____

24. The table shows the cost y
(in dollars) of x cold drinks.   c._____

Drinks, x	0	2	4	6
Cost, y	0	3	6	9

  a. Graph the data.   25. _____

  b. Write a linear function that relates   26. _____
     y to x.   27. _____

  c. How much does it cost to buy three   28. _____
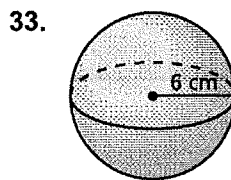   drinks?   29. _____

                                                     30. _____
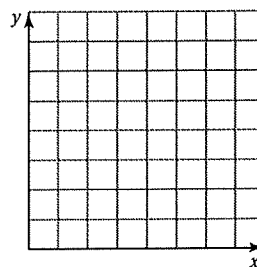
Does the equation or table represent a *linear* or *nonlinear* function?

25. $2x - 4y = 6$ **26.**

x	3	7	11	15
y	2	4	8	16

Evaluate the expression.

27. $-\sqrt{121} + 15$ **28.** $6 - 5\sqrt[3]{\dfrac{1}{125}}$

29. A ladder is placed against the side of a house. The top of the ladder
is 12 feet above the ground. The base of the ladder is 5 feet away
from the house. Find the length of the ladder.

30. Between which two integers is $\sqrt{42}$? Explain.

Test 1 — End-of-Course Test (continued)

Find the volume of the solid. Round your answer to the nearest tenth.

Answers

31.

5 in.
8 in.

32.

5 mm
9 mm

33.

6 cm

31. _____

32. _____

33. _____

34. a. __See left.__

b. __See left.__

c. _____

d. _____

35. ____See left.____

36. ____See left.____

37. _____

38. _____

39. _____

40. _____

41. _____
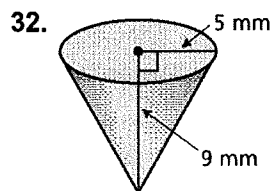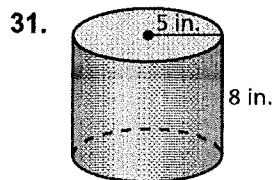
34. The table shows the number of years of college education and hourly earnings (in dollars) for several people.

Number of Years, x	0	1	3	5	6
Hourly Earnings, y	6	8	15	25	30

a. Make a scatter plot of the data.

b. Draw a line of fit.

c. Write an equation for the line of fit.

d. Predict the hourly earnings for a person with four years of college education.
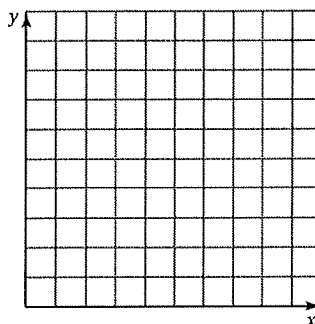
Choose an appropriate data display for the situation. Explain your reasoning.

35. the percent of students with 0, 1, 2, or more than 2 siblings

36. the average movie theater ticket price over the last ten years

Evaluate.

37. $\left(3^2\right)^{-1}$

38. $12^3 \cdot 12^{-4}$

39. $\dfrac{(-7)^6}{(-7)^4}$

Multiply. Write your answer in scientific notation.

40. $\left(4.6 \times 10^{-2}\right) \times \left(1.0 \times 10^{-8}\right)$

41. $\left(2.5 \times 10^7\right) \times \left(1.4 \times 10^6\right)$

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Write the word sentence as an inequality.

Answers

42. 3 less than a number t is at most 7.

42. _____

43. A number m multiplied by 4 is greater than 12.

43. _____

44. You and two friends are making a gift basket. You want to keep the cost below $15 per person. Write and solve an inequality that represents the total cost of the gift basket.

44. _____

_____

45. _____

Solve the inequality. Graph the solution.

45. $a - 7 \le -4$

46. $-3m < 15$

_____**See left.**_____

46. _____

_____**See left.**_____
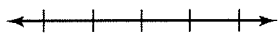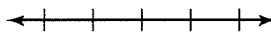
47. If you spend at least $50 (including shipping) at an online store, you receive a $10 gift card. You want to purchase CDs that cost $12 each. If shipping costs $5, write and solve an inequality to find the number of CDs you must buy to receive the gift card.

47. _____

_____

_____

Classify the angles as *complementary*, *supplementary*, or *neither*.

48. $23°, 67°$

49. $46°, 144°$

48. _____

49. _____

Classify the triangle.

50.

51.

50. _____

_____

51. _____

_____

52. _____
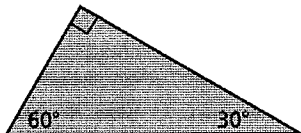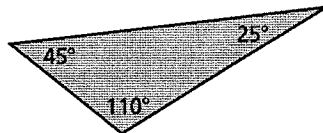
Find the value of *x*.

52.

53.

53. _____

54. _____

55. _____

_____

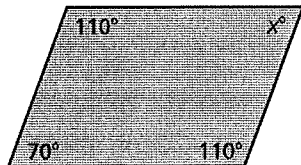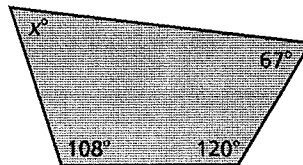**54.** A scale drawing has a scale of 3 in. : 1 ft. What is the scale factor?

55. The diameter of a circle is 14 inches. Find the circumference and area. Use $\dfrac{22}{7}$ for π.

Test 1 **End-of-Course Test** (continued)

56. Find the area of the figure. Use 3.14 for π.

Answers

56. _____

57. _____

_____

58. _____

Find the volume and surface area of the solid.

57.

6 cm

4 cm

3 cm

58.

4 ft

5 ft

6 ft

6 ft

_____
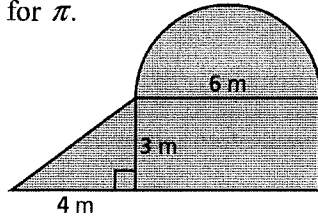
59. _____

60. a. __See left.__

b. __See left.__

61. _____

62. _____

63. _____

64. _____

65. _____
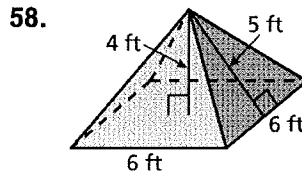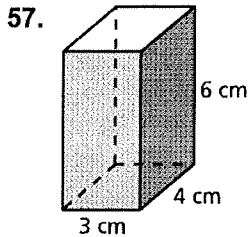
59. Find the surface area of the cylinder with a radius of 2 inches and a height of 4 inches. Round your answer to the nearest tenth.

60. A manufacturer wants to make a box with a volume of 24 cubic feet.

a. Sketch two possible designs for the box.

b. If the box is to be made out of wood that costs $4 per square foot, which of your designs would be less expensive to produce? Explain.

61. The theoretical probability that you will try out for the school play is $\frac{1}{10}$. There are 22 students in your grade that try out for the school play. How many students are in your grade?

62. You flip two coins. What is the probability that you flip at least one head?

You roll a number cube twice. Find the probability of the event.

63. Rolling a 5 then a 3

64. Rolling an even then an odd

65. The probability that your ticket will be chosen in a drawing is 6%. There are 250 tickets in the drawing. How many tickets are yours?

Quantitative Skills (52 Questions) (30 Minutes)

Directions: Choose the best answer to each question.

61. What is the next number in the following series: 12, 24, 36, 48, ... ?
A 60
B 56
C 72
D 64

62. 2 percent of a number is equal to 2 times 0.2 percent. What is the number?
A 4
B 2
C 0.4
D 0.2

63. Examine (a), (b), and (c) and then choose the correct answer.
(a) the arithmetic mean (simple average) of 9 and −10
(b) the arithmetic mean (simple average) of 10 and −9
(c) the arithmetic mean (simple average) of 2 and −2
A (b) is greater than (c) and less than (a)
B (c) is less than (b) and greater than (a)
C (a) is greater than (c) and less than (b)
D (a) is equal to (b), and (b) is equal to (c)

64. What is the next number in the following series: $-2, -\frac{3}{2}, -1, -\frac{1}{2}, ...$?
A 0
B 1
C $\frac{1}{2}$
D −1

65. $\frac{5}{4}$ of $\frac{4}{5}$ is what fraction of $\frac{5}{4}$?
A $\frac{5}{4}$
B $\frac{15}{16}$
C $\frac{4}{5}$
D $\frac{1}{2}$

66. What is the missing number in the following series: −4, 5, __, 7, −8, 9, ... ?
A 6
B −7
C −6
D −5

67. Examine figures (a), (b), and (c) and then choose the correct statement.

(a)   (b)   (c)

A The number of petals in figure (b) is greater than the number of leaves in figure (a).
B The number of leaves in figure (c) is less than the number of petals in figure (b).
C The number of leaves in figure (b) is equal to the number of petals in figure (a).
D The number of petals in figure (a) is equal to the number of petals in figure (c).

68. What are the next two numbers in the following series: 3, 7, 2, 3, 7, 2, 3, ... ?
A 2, 3
B 7, 2
C 4, 7
D 7, 3

69. One-third is one-third of what number?
A 1
B $\frac{1}{9}$
C $\frac{1}{6}$
D $\frac{1}{3}$

Quantitative Skills (continued)

70. What number is three-fourths added to one-half?

    A 1.1
    B 1.2
    C 1.25
    D 0.25

71. Examine (a), (b), and (c) and then choose the best answer.

    (a) 225% of 8
    (b) 75% of 12
    (c) 5% of 20

    A (a) × (c) = (b)
    B 2(b) × (c) = (a)
    C (c) = 4(a) + (b)
    D (a) = (b) + (c)

72. What integer is less than eleven-fourths but greater than eleven-tenths?

    A 1
    B 4
    C 3
    D 2

73. What is the next number in the following series: 2.4, 2.1, 1.8, 1.5, 1.2, ... ?

    A 0.09
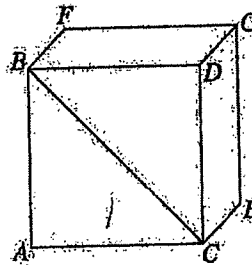   B 1.1
    C 0.9
    D 1.0

74. What is the missing number in the following series: 9, 3, 1, 18, ___, 2, 36, 12, 4?

    A 4
    B 9
    C 6
    D 8

75. 40 percent of what number is equal to 10 percent of 40?

    A 16
    B 10
    C 4
    D 20

76. Examine the cube and select the best answer.

    A $CE \times BC = BF \times DG$
    B $BF + DC = 3 \times GE$
    C $AB + BC > 2 \times CE$
    D $DG + AC = BC$

77. What is the next number in the following series: 3, 9, 7, 13, 11, 17, 15, ... ?

    A 19
    B 20
    C 23
    D 21

78. Examine (a), (b), and (c) and then choose the best answer.

    (a) $32 + \frac{1}{3}(10 - 4)$
    (b) $4(2 \times 3) - 8 + 2$
    (c) $48 + \frac{3}{2}(15 - 7)$

    A (c) + (a) = (b)
    B (b) = 2(c) + (a)
    C (a) − (c) = (b)
    D (a) = (c) − (b)

79. What is the next letter in the following series: a, b, d, g, k, ... ?

    A o
    B n
    C q
    D p

80. What number is 20% of the average of 20%, 60%, and 70%?

    A 10%
    B 15%
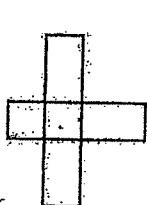   C 20%
    D 12.5%

Quantitative Skills (continued)

81. What is the next number in the following series: 13, 12, 14, 11, 15, 10, 16, . . . ?
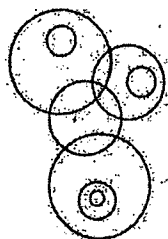
A. 13
B. 17
C. 9
D. 11

82. What are the next two numbers in the following series: 2, 5, 5, 1, 2, 5, 5, 1, . . . ?

A. 2, 2
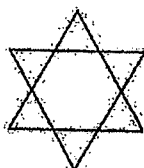B. 5, 1
C. 1, 2
D. 2, 5

83. Examine figures (a), (b), and (c), and then choose the correct statement.

(a)   (b)   (c)

A. The number of triangles is figure (c) is greater than the number of circles in figure (b).

B. The number of triangles is figure (c) equals the number of rectangles in figure (a).

C. The number of rectangles is figure (a) is less than the number of triangles in figure (c).

D. The number of circles is figure (b) equals the number of triangles in figure (c).

84. What is the next number in the following series: 15, 30, 10, 40, 8, . . . ?

A. 48
B. 60
C. 25
D. 36

85. What number's square root is the square of 3?

A. 9
B. 27
C. 81
D. 36

86. Four times what number is two less than three-fourths of eight?

A. $\frac{7}{2}$
B. 1
C. 3
D. 2

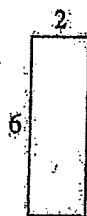**87.** Examine (a), (b), and (c) and then choose the best answer.

(a) 0.2×0.2
(b) $20 \times .002$
(c) 0.02×2

A. (b) > (c) > (a)
B. (c) = (a), and (b) < (a)
C. (a) = (b) = (c)
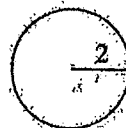D. (a) = (b), and (c) > (b)

88. What is the next number in the following series: IV, 8, XVI, 32, LXIV, . . . ?
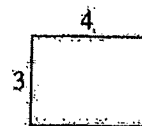
A. 128
B. 156
C. 96
D. 72

89. Which of the three figures below has the largest area?

(a)   (b)   (c)

A. Figure (a)
B. Figure (b)
C. Figure (c)
D. All three figures are equal in area.

Quantitative Skills (continued)

90. Examine (a), (b), and (c) and then choose the correct answer.

(a) $\dfrac{2}{5} - \dfrac{1}{2} + \dfrac{3}{10}$

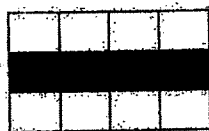(b) $\dfrac{5}{6} - \dfrac{4}{3} + \dfrac{7}{12}$

(c) $\dfrac{1}{2} - \dfrac{3}{4} + \dfrac{3}{8}$

A (b) is greater than (c) and less than (a)
B (c) is less than (a) and greater than (b)
C (a) is greater than (c) and less than (b)
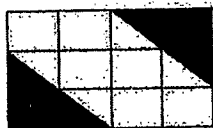D (a) is less than (c) and greater than (b)

91. Examine figures (a), (b), and (c), which show grids of equal size and proportion, and then choose the correct statement.

(a)

(b)

(a)

A The shaded area of figure (a) is less than the shaded area of figure (c).
B The shaded area of figure (b) is less than the shaded area of figure (a).
C The shaded area of figure (a) is equal to the shaded area of figure (c).
D The shaded area of figure (c) is equal to the shaded area of figure (b).

92. What number must you add to both the numerator and denominator of $\dfrac{1}{3}$ to obtain $\dfrac{3}{4}$?

A 7
B 3
C 5
D 9

93. What is the next number in the following series: $\dfrac{16}{2}, \dfrac{30}{4}, \dfrac{24}{3}, 7\dfrac{1}{2}, \dfrac{48}{6}, \dfrac{15}{2}, \dots$?

A $\dfrac{11}{4}$

B 8

C $\dfrac{12}{5}$

D $\dfrac{30}{4}$

94. Examine (a), (b), and (c).

(a) the reciprocal of $\dfrac{1}{2}$

(b) the reciprocal of $\dfrac{3}{4}$

(c) the reciprocal of $\dfrac{3}{2}$

All of the following are true EXCEPT:

A (a) × (c) = (b)
B (b) ÷ (c) = (a)
C (b) − (c) = (a) ÷ 3
D (a) ÷ 2 = (b) × (c)

95. What is the next number in the following series: $\dfrac{34}{5}, 6\dfrac{1}{5}, \dfrac{28}{5}, 5, 4\dfrac{2}{5}, \dots$?

A $3\dfrac{4}{5}$

B $\dfrac{23}{5}$

C $3\dfrac{3}{5}$

D $\dfrac{21}{5}$

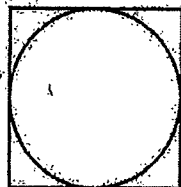**96.** One-fourth of four less than a number is equal to six more than eleven. What is the number?

A $9\dfrac{1}{2}$

B 72

C 6

D 16

Quantitative Skills (continued)

97. What number is 150 percent of 350 percent?

A $2\frac{1}{3}$

B $10\frac{1}{2}$

C $4\frac{2}{3}$

D $5\frac{1}{4}$

98. The figure below shows a square and a circle.

Which of the following statements is true?

A The square's perimeter is twice the circle's diameter.

B The circle's radius equals the length of a side of the square.

C The circle's circumference is less than the square's perimeter.

D The area of the square is equal to the area of the circle.

99. Three-fourths is four-fifths of what number?

A $\frac{15}{16}$

B $\frac{6}{5}$

C $\frac{15}{4}$

D $\frac{5}{6}$

100. What is the missing number in the following series: 37, 35, 36, 34, ___, 33, 34, 32?

A 34

B 33

C 35

D 32

101. What positive integer multiplied by itself twice is most nearly equal to 100?

A 4

B 10

C 33

D 5

102. What is the next term in the following series: 14BH, 12GG, 10IF, 8KE, 6MD, ... ?

A 5OC

B 4NB

C 2MK

D 4OC

103. 13 more than two-thirds of a number is equal to 35. What is the number?

A 33

B 17

C 29

D 24

104. In (a), (b), and (c) below, $p < 0$ and $q < 0$.

(a) $|p| + |q|$

(b) $p + |q|$

(c) $p - |q|$

Which of the following statements is true?

A (a) < (c) < (b)

B (b) < (a) < (c)

C (c) < (b) < (a)

D (a) < (b) < (c)

Quantitative Skills *(continued)*

105. Examine figures (a), (b), and (c), and then choose the correct statement.

(a)   (b)   (c)

A The number of circles is figure (a) equals the number of triangles in figure (c).

B The number of triangles is figure (a) equals the number of triangles in figure (b).

C The number of circles is figure (c) equals the number of triangles in figure (a).

D The number of triangles is figure (b) is greater than the number of circles in figure (b).

106. Examine (a), (b), and (c) and then choose the correct answer.

(a) $\sqrt{81}$

(b) 2^3

(c) 3^2

A (a) < (b)

B (c) > (a)

C (b) = (c)

D (a) = (c)

107. What number subtracted from −1 is one greater than the sum of −1 and −1?

A 1

B 0

C 2

D −1

108. Assume that $x > 1$, $y > 1$, and $z > 1$ and that x, y, and z are integers. Examine (a), (b), and (c) and then choose the best answer.
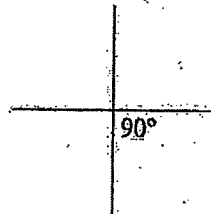
(a) $x(y + z)$

(b) $xz + xy$

(c) $x + y + z$

A (a) is equal to (b) and less than (c)

B (a) is equal to (b) and to (c)

C (a) is equal to (c) and greater than (b)
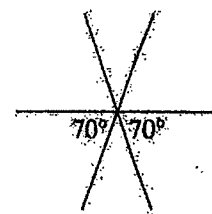
D (b) is less than (c) and greater than (a)

109. What is the next number in the following series: 100, 50, 25, 12.5, 6.25, . . . ?

A 3.125

B 3.025
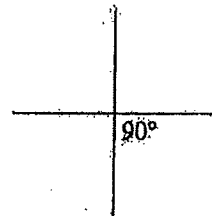
C 2.50

D 1.75

110. Examine figures (a), (b), and (c), and then choose the correct statement.

(a)   (b)

(a)

A Figure (a) contains more right angles than figure (c).

B Figure (b) contains the same number of 20° angles as figure (c).

C Figure (c) contains the same number of 70° angles as figure (b).

D Figure (b) contains more acute angles than figure (c).

Quantitative Skills *(continued)*

111. What are the next two numbers in the following series: 2, 4, 3, 4, 4, 4, 5, 4, . . . , ?
    A 4, 3
    B 3, 4
    C 4, 5
    D 6, 4

112. What number is 64 divided by the cube root of 64?
    A 8
    B 16
    C 4
    D 2

STOP!
If you finish before time runs out, check your work on this section only.

STOP

Mathematics (64 Questions) (45 Minutes)

Directions: Choose the best answer to each question.

Concepts

175. What value does the digit 4 represent in the decimal number 35.9842?

A $\dfrac{4}{1,000}$

B $\dfrac{4}{10}$

C $\dfrac{4}{100}$

D $\dfrac{4}{10,000}$

176. How many integers are greater than 10 but less than 100?

A 90
B 88
C 91
D 89

177. Which of the following is a quadrilateral?
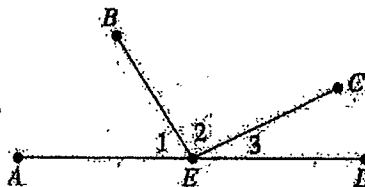
A hexagon
B triangle
C pentagon
D trapezoid

178. If $a + 2b = b$, then $b =$

A $2ab + b$
B $4ab$
C $3a + 4b$
D $b + 2a$

179. What is the difference between the sum of all even integers between 0 and 101 and the sum of all odd integers between 0 and 100?

A 50
B 0
C 100
D 1

180. In the figure below, $\angle BEC$ is a right angle.

Which of the following statements must be true?

A $m\angle 1 = m\angle 3$
B $m\angle 1 + m\angle 3 = m\angle 2$
C $m\angle 1 + m\angle 2 + m\angle 3 = 360°$
D $m\angle 1 + m\angle 2 = 180°$

181. The number 500,000 is equivalent to

A 5×10^5
B 10×5^6
C 5×10^6
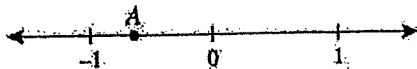D 10×5^5

182. $x + 2x + 3x =$

A $5x^3$
B $6x$
C $5 + 3x$
D $6x^3$

183. Which of the following represents $\{3,5,8,2,4\} \cap \{2,4,6,8,10\}$?

A $\{2,3,4,5,6,8,10\}$
B $\{1,7,9\}$
C $\{3,5,10\}$
D $\{2,4,8\}$

Mathematics (continued)

184. Point A appears on the real number line as shown below:

If x and y are real numbers, point A below CANNOT represent

A $x^2 - y^2$

B $x^3 + y^3$

C $x^2 + y^2$

D $x^3 - y^3$

185. Which of the following is a complete and accurate list of the prime factors of 48?

A 2,3

B 2,3,4

C 2,3,6

D 2,3,13

186. If the lengths of two sides of a triangle are 5 and 9, the length of the third side could be

A 9

B 14

C 4

D 15

187. If $\dfrac{P}{2+Q} = R$, then which of the following equals $2R$?

A $\dfrac{P}{4+2Q}$

B $\dfrac{P}{1+\frac{Q}{2}}$

C $\dfrac{2P}{4+Q}$

D $\dfrac{P}{2+\frac{2}{Q}}$

188. The population of a certain city is 2,355,002. Rounded to the nearest ten thousand, what is the city's population?

A 2,400,000

B 2,450,000

C 2,356,000

D 2,360,000

189. If one of the angles of an isosceles triangle measures 100°, one of the other angles must measure

A 80°

B 100°

C 40°

D 60°

190. If $x < -1$ and $y > 1$, then it must be true that

A $x + y \leq 0$

B $xy \leq -1$

C $x + y > 0$

D $\dfrac{x}{y} \geq 1$

191. In the figure below, $l_1 \parallel l_2$.
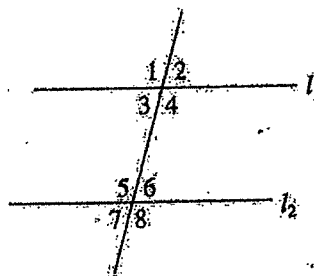
All of the following statements are true EXCEPT:

A $m\angle 2 + m\angle 8 = m\angle 5 + m\angle 3$

B $m\angle 3 + m\angle 7 = m\angle 6 + m\angle 2$

C $m\angle 1 + 180 = m\angle 5 + m\angle 8$

D $m\angle 4 = 180 - m\angle 7$

Mathematics *(continued)*

192. Which of the following is a prime number?

- A   69
- B   73
- C   87
- D   55

193. 25 cents is what fraction of 100 dollars?

- A $\dfrac{1}{250}$
- B $\dfrac{1}{500}$
- C $\dfrac{1}{400}$
- D $\dfrac{25}{1,000}$

194. If a, b, and c are consecutive integers such that $0 < a < b < c$, which of the following could be an integer?

- A $\dfrac{a}{b}$
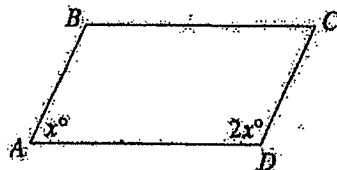- B $\dfrac{b}{c}$
- C $\dfrac{c}{b}$
- D $\dfrac{b}{a}$

195. When you increase a cube's height by 100%, you increase its volume by

- A   600%
- B   400%
- C   700%
- D   200%

196. Which of the following is the set of common factors of 60 and 36?

- A   (2,3,6,12,18)
- B   (2,3,6,12)
- C   (2,3,4,6,8,12)
- D   (2,3,4,6,12)

197. The figure below shows a parallelogram.

Which of the following statements is true?

- A   Interior angle BCD measures $x°$.
- B AB is perpendicular to AD.
- C $x > 90$
- D   Interior angle ABC is an acute angle.

198. If Kira randomly selects an integer from 1 to 50, the probability that she will select a multiple of 3 is

- A $\dfrac{1}{6}$
- B $\dfrac{3}{10}$
- C $\dfrac{8}{25}$
- D $\dfrac{1}{5}$

Problem Solving

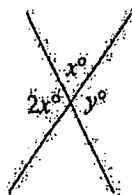**199.** $-1 - (-2) - (-3) =$

- A -6
- B   4
- C   0
- D   3

200. A salad costs $3.75, a beverage costs $1.50, and a bagel costs $2.25. Kevin, who has $5.50 to spend, can buy any of the following EXCEPT:

- A   three beverages
- B   two beverages and a bagel
- C   a salad and beverage
- D   a bagel and salad

Mathematics (continued)

201. Find the value of y in the figure below.

- **A** 120
- **B** 90
- **C** 130
- **D** 100

202. $298.67 + 1.33 =$

- **A** 301
- **B** 299.90
- **C** 300.01
- **D** 300

203. $\frac{4}{5} + 0.2 + 5\% =$

- **A** $\frac{5}{4}$
- **B** $\frac{21}{20}$
- **C** $\frac{6}{5}$
- **D** $\frac{11}{10}$

204. On a cold winter day, the low temperature was $-6°$ and the high temperature was $11°$. Based on these two statistics, what was the average temperature for the day?

- **A** $2.5°$
- **B** $0.5°$
- **C** $1.5°$
- **D** $-0.5°$

205. In the figure below, if the area of triangle ABC is 15 square feet, what is the length of BC?
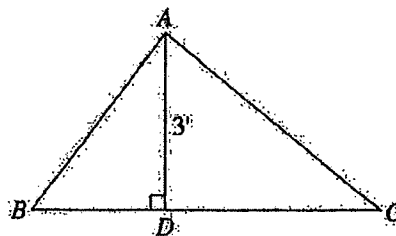
- **A** 12 feet
- **B** 10 feet
- **C** 12.5 feet
- **D** 7.5 feet

206. Each of 24 candies in a box is either chewy or hard. If 9 candies are chewy, how many hard candies must you remove in order for the box to contain the same number of hard candies and chewy candies?

- **A** 9
- **B** 12
- **C** 6
- **D** 15

207. Which of the following is most nearly equal to $\frac{5}{3}$?

- **A** 3.5
- **B** 170%
- **C** 1.6
- **D** 230%

208. For what value of x does $\frac{x}{2} = \frac{1}{2}(2 - x)$?

- **A** 1
- **B** 0
- **C** 2
- **D** $\frac{1}{2}$

Mathematics (continued)

209. $\dfrac{3^4}{6^4} =$

   A $\dfrac{1}{4}$

   B $\dfrac{1}{16}$

   C $\dfrac{3}{32}$

   D $\dfrac{1}{20}$

210. If 30 ounces of coffee beans are removed from a 5-pound bag of coffee beans, the new weight of the bag of coffee beans is

   A   50 ounces
   B   20 ounces
   C   40 ounces
   D   60 ounces

211. A circle is divided into four sectors around a central vertex, forming central angles measuring 68°, 82°, and 120°. What is the size of the fourth central angle?

   A   70°
   B   110°
   C   60°
   D   90°

212. A team played 25 games in the season, losing 8 more games than it won. 3 of the games resulted in ties. How many games did the team win?

   A   15
   B   12
   C   7
   D   10

213. Which of the following operations yields the greatest sum?

   A $2.1 + \dfrac{3}{5}$

   B $0.8 + \dfrac{8}{4}$

   C $2.0 + \dfrac{3}{4}$

   D $0.1 + \dfrac{5}{2}$

214. The table below shows distances (in miles) between five cities.

	A	B	C	D	E
A		24	63	15	32
B	24		12	40	6
C	63	12		20	27
D	15	40	20		52
E	32	6	27	52	

Which of the following trips, each involving two legs, is longest in distance?

   A   From D to B, and then to C
   B   From C to A, and then to D
   C   From A to E, and then to B
   D   From D to B, and then to C

215. Fill in the blank to complete the following equation:

$$11 - 10 \div (\underline{\quad} \times 3) + 3 = 4$$

   A $-\dfrac{1}{3}$

   B   4

   C -4

   D $\dfrac{1}{3}$

216. If Stacy drinks 25% of a 16-ounce carton of milk, and then later drinks 25% of the remaining milk, how many ounces of milk are left?

   A   11
   B   9
   C   8
   D   10

217. A rectangular plot of land with a length of 150 feet has an area of 12,000 square feet. The width of the plot is

   A   80 feet
   B   100 feet
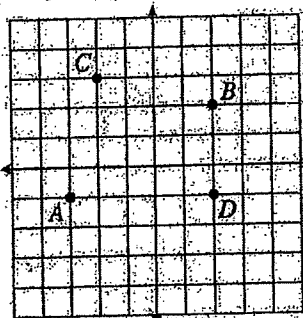   C   65 feet
   D   135 feet

Mathematics (continued)

218. $3.8 - 0.38 =$

A 3.42
B 3.5
C 3.58
D 3.3

219. Currently, Pam's age is greater than Terry's age by 15 years. Two years ago, Pam's age was twice Terry's age. What is Pam's current age?

A 28
B 32
C 40
D 36

220. Four points appear on the (x,y) coordinate plane below.

For which of the four points is the product of the point's x and y coordinates least in value?

A Point A
B Point B
C Point C
D Point D

221. After one year, a $700 deposit in a savings account earning simple interest is worth $735. What annual rate of interest did the deposit earn?

A 3.5%
B 2%
C 17.5%
D 5%

222. It took Matt twice the time to drive from home to work as it took him to drive back home from work. If Matt averaged 20 miles per hour (mph) on his drive to work, his average speed for the entire round trip was

A 30 mph
B 25 mph
C 40 mph
D 15 mph

223. $|-6| - |-6| =$

A −12
B −6
C 0
D 12

224. $\dfrac{26 \times 48}{24 \times 52} =$

A 7
B 13
C 1
D 2

225. A box has sides 4 inches, 5 inches, and 8 inches. All faces of the box are rectangles. How many 1-inch cubes can you pack into the box?

A 200
B 90
C 120
D 160

226. Carrie skates only forward in straight lines. If she skates 10 feet, then turns 90° to the right and skates 6 feet, then turns 180° and skates 10 feet, which of the following series of instructions must Carrie follow in order to return to the spot where she started?

A Turn 90° to the right and skate 10 feet, then turn 180° and skate 4 feet.
B Turn 180° and skate 6 feet, then turn 90° to the right and skate 10 feet.
C Turn 180° and skate 4 feet, then turn 90° to the right and skate 10 feet.
D Turn 90° to the left and skate 10 feet, then turn 90° to the left and skate 6 feet

Mathematics (continued)

227. How many centimeters is equivalent to one fourth of one meter?

A 250
B 40
C 25
D 4

228. Of 27 animals at the zoo, 15 are monkeys. Which of the following fractions expresses the ratio of monkeys to all other animals at the zoo?
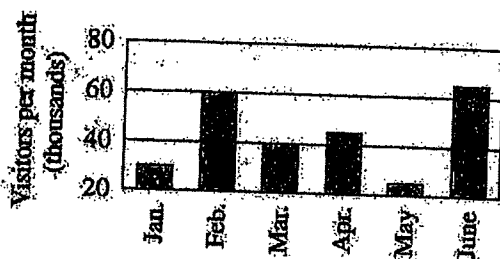
A 5:4
B 5:9
C 4:5
D 4:3

229. $2\sqrt{5} + 2\sqrt{125} =$

A $4\sqrt{10}$
B $10\sqrt{5}$
C $8\sqrt{12}$
D $12\sqrt{5}$

Questions 230 and 231 are based on the following information:

The graph below shows the number of visitors to Seaside State Park during each of six months.

230. The greatest *increase* in the number of park visitors from one month to the next occurred

A from January through February
B from February through March
C from March through April
D from May through June

231. Approximately how many visitors did the park receive altogether during the six months shown?

A 190,000
B 265,000
C 240,000
D 225,000

232. Find the value of the expression $\dfrac{3x}{z} - 4y^3$ when $x = 4$, $y = 3$, and $z = 2$.

A −30
B −6
C 42
D 12

233. $(-3)^3 + (-2)^2 =$

A −23
B 31
C 14
D −5

234. The central angle of one sector of a circle measures 80°. What is the area of the sector as a portion of the circle?

A $\dfrac{1}{5}$
B $\dfrac{2}{5}$
C $\dfrac{3}{8}$
D $\dfrac{2}{9}$

235. Ashley earns $15 per hour and receives a 5% commission on all of her sales. How much did Ashley earn during an 8-hour day during which Ashley's sales totaled $400?

A $160
B $175
C $150
D $140

236. Solve for $\left(\frac{2}{3}+\frac{1}{5}\right)-\left(\frac{1}{4}+\frac{1}{2}\right)=$

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

(B) $\frac{7}{60}$

(C) $\frac{51}{60}$

(D) $\frac{37}{60}$

237. If the tax rate is $3.62 per $100, how much tax must be paid on a home assessed at $25,000?

(A) $90.50

(B) $80.50

(C) $805

(D) $905

STOP End of Mathematics section. If you have any time left, go over your work in this section only. Do not work in any other section of the test.