Summer Homework Packet (7th grade math)

1. Which of the following points is graphed at the opposite of –3 on the number line below?

   A   *A*

   B   *B*

   C   *C*

   D   *D*

2. Candice recorded outdoor temperatures of –5°C, –1°C, and –2°C. Which of the following correctly compares the three temperatures?

   A $-5 < -1 < -2$

   B $-1 < -2 < -5$

   C $-2 < -1 < -5$

   D $-5 < -2 < -1$

3. Which of the following pairs shows an integer and its opposite?

   A $7, -7$

   B $7, \dfrac{1}{7}$

   C $-7, -\dfrac{1}{7}$

   D $-\dfrac{1}{7}, \dfrac{1}{7}$

4. Which number has the same absolute value as –5?

   A $-\dfrac{1}{5}$ C   0

   B $\dfrac{1}{5}$ D   5

5. What is the greatest common factor of 30 and 45?

   A   1   C   15

   B   5   D   30

6. What is the least common multiple of 16 and 24?

   A   4   C   24

   B   16   D   48

7. Jason plotted points on a number line at the four values below.

   $$0.75, \ -\frac{2}{3}, \ -0.4, \ \frac{7}{8}$$

   Which of these values is farthest from zero?

   A   0.75   C   –0.4

   B $-\dfrac{2}{3}$ D $\dfrac{7}{8}$

8. To which set or sets below does the number $-\dfrac{1}{2}$ belong?

   A   whole numbers only

   B   rational numbers only

   C   integers and rational numbers only

   D   whole numbers, integers, and rational numbers

9. Which pair of points graphed below have values that are opposites?

   A   *A* and *B*   C   *C* and *E*

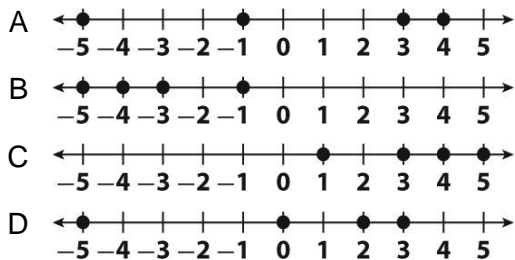   B   *B* and *D*   D   *A* and *E*

Summer Homework Packet

10. Which number line shows the values of $|1|$, $|-3|$, $|-4|$ and $|5|$?

A

B

C

D

11. Susie divided a 9-pound bag of apples into 5 equal piles. How many pounds of apples are in each pile?

    A $\dfrac{1}{5}$ lb   C $1\dfrac{4}{5}$ lb

    B $\dfrac{5}{9}$ lb   D $1\dfrac{5}{4}$ lb

12. Stephen's glass holds 450 milliliters of milk. Farrah's glass holds $\dfrac{2}{5}$ as much milk. How much milk does Farrah's glass hold?

    A 90 mL   C 225 mL

    B 180 mL   D 360 mL

13. Which of the following expressions is equivalent to the expression below?

    $$\dfrac{4}{7} \times \dfrac{5}{9}$$

    A $\dfrac{5}{9} \div \dfrac{4}{7}$ C $\dfrac{4}{9} \div \dfrac{5}{7}$

    B $\dfrac{4}{7} \div \dfrac{5}{9}$ D $\dfrac{4}{7} \div \dfrac{9}{5}$

14. Leah cut a $7\dfrac{1}{2}$-inch piece of ribbon into pieces that are each $\dfrac{3}{4}$ of an inch long. How many pieces of ribbon did she cut?

    A 6 pieces   C 10 pieces

    B 9 pieces   D 15 pieces

15. Jonas is making a trail mix recipe that calls for $3\dfrac{1}{2}$ cups of nuts and $1\dfrac{1}{2}$ cups of raisins. Jonas mixes the nuts and raisins together. He will then divide the mixture into plastic bags containing $\dfrac{1}{4}$ cup of trail mix in each bag. How many plastic bags does Jonas need?

    A 1   C 20

    B 5   D 50

16. Serena has 6,783 seeds to plant in her vegetable garden. She will plant 119 seeds per row. How many rows of vegetables will she have?

    A 42   C 69

    B 57   D 73

17. Jinwon hit a golf ball 145.7 yards. Kayla hit a golf ball 122.95 yards. How much farther did Jinwon hit a golf ball?

    A 22.75 yards

    B 30.25 yards

    C 80.12 yards

    D 108.36 yards

18. Gabriel drives 80 kilometers in one hour. If he drives at the same speed, how many kilometers can he drive in 3.75 hours?
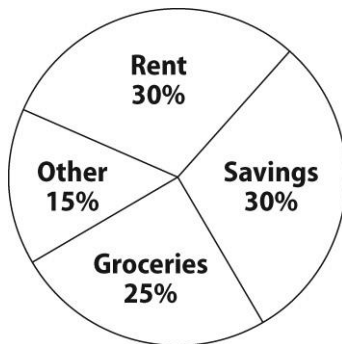
    A 24.75 km   C 80.75 km

    B 30 km   D 300 km

Summer Homework Packet

19. How many 0.4-liter glasses of water are contained in a 5.2-liter pitcher?

   A 1.3 glasses

   B 13 glasses

   C 13.4 glasses

   D 52 glasses

20. Alissa's budget is shown in the circle graph below. Her total monthly budget is $1,500. How much does Alissa spend on rent?

   A $250   C $450

   B $300   D $500

21. In Evan's math class, there are 17 boys and 21 girls. Which of the following is the ratio of boys to girls in the class?

   A $\dfrac{17}{38}$ C $\dfrac{17}{21}$

   B $\dfrac{21}{38}$ D $\dfrac{21}{17}$

22. Sara bought a 16-ounce jar of strawberry jam for $3.20. What is the unit price?

   A $0.02/oz

   B $0.50/oz

   C $0.20/oz

   D $5.00/oz

23. Zach is making a recipe that requires 1 cup of vinegar and 3 cups of water. Which of the following combinations shows the same ratio of vinegar to water?

   A 2 cups of vinegar to 3 cups of water

   B 2 cups of vinegar to 6 cups of water

   C 3 cups of vinegar to 1 cup of water

   D 3 cups of vinegar to 6 cups of water

24. Liam bought 8 quarts of juice at the grocery. How many gallons of juice did he buy?

   A 1 gal   C 3 gal

   B 2 gal   D 4 gal

25. Delia measured her bathtub to be 1.5 meters long. Which of these is an equivalent measurement?

   A 0.6 miles   C 3.81 ft

   B 4.9 yd   D 59 in.

26. Nora bikes 30 miles per hour. Jiro bikes 45 miles per hour. Nora and Jiro each bike for 5 hours. How many more miles does Jiro bike?

   A 15 mi   C 150 mi

   B 75 mi   D 225 mi

27. The table below shows the number of books on shelves at a library. Which of the following represents the number of books?
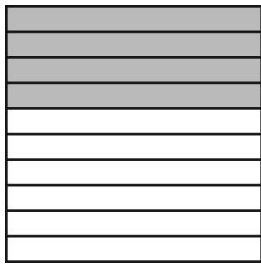
Books	42	63	105	147
Shelves	2	3	5	7

   A shelves × 3

   B shelves × 21

   C shelves + 28

   D shelves + 42

Summer Homework Packet

28. On a certain map, 1.25 inches represents 20 miles. Longwood and Milltown are 5 inches apart on the map. What is the actual distance between Longwood and Milltown?

   A 20 mi   C 80 mi

   B 25 mi   D 100 mi

29. What percent of the rectangle below is shaded?

   A 20%   C 40%

   B 30%   D 80%

30. Which number is greater than the absolute value of $-\dfrac{5}{9}$?

   A −1   C 0.2

   B $-\dfrac{2}{3}$ D $\dfrac{4}{7}$

31. What are all the factors of 18?

   A 1, 2, 3, 6

   B 2, 3, 6, 9

   C 1, 2, 3, 6, 9

   D 1, 2, 3, 6, 9, 18

32. What is the value of the expression below?

   $$205 - (7 - 2)^3 \div 5$$

   A 16   C 40

   B 36   D 180

33. Which of the following expressions is equivalent to the expression below?

   $$2(7x + 3 - x)$$

   A $12x + 6$

   B $14x + 6$

   C $17x - 2$

   D $11x + 3$

34. Which is a solution of the equation below?

   $$m - 9 = 4$$

   A $m = -5$ C $m = 5$

   B $m = -13$ D $m = 13$

35. There are s students in Mrs. Naya's class. There are 6 students absent and 18 students present today. Which of the following equations represents this situation?

   A $s + 6 = 18$ C $18 + 6 = s$

   B $s - 6 = 18$ D $18 - s = 6$

36. Which inequality is shown on the number line below?
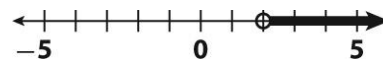
   A $p < 2$

   B $p \le 2$

   C $p > 2$

   D $p \ge 2$

37. Write an algebraic expression for the phrase below.

   12 less than a number n

   A $12 - n$ C $12 < n$

   B $n - 12$ D $n + 12$

Summer Homework Packet

38. Evaluate the expression below for
    $x = 4$.

    $$6(x + 7)$$

    A 24

    B 31

    C 42

    D 66

39. Combine like terms to simplify the
    expression below.

    $$14x + 2(2x - y) - y$$

    A $10x - 3y$

    B $14x - y$

    C $14x - 3y$

    D $18x - 3y$

40. A high-school band has d drummers
    and 10 violinists. There are 2 more
    violinists than drummers. Which of the
    following equations represents the
    situation?

    A $d = 10 + 2$

    B $d = 10 - 2$

    C $d = 2 - 10$

    D $d = 2 \times 10$

41. A student bought a book for $7.50 and
    a pen. The total cost was $9.50. Which
    of the following equations can be used
    to find the cost of the pen?

    A $p = 7.5b$

    B $p = 9.5b$

    C $9.50 + p = 7.50$

    D $7.50 + p = 9.50$

42. Which of the following is a solution to the
    equation below?

    $$3.5 + m = 7$$

    A $m = 3$ C $m = 4$

    B $m = 3.5$ D $m = 7$

Use the table for 43 and 44.

Auto Repair Charges

Hours, x	2	5	7
Charge, y ($)	180	450	630

43. Which equation expresses y in terms
    of x?

    A $y = 90x$

    B $y = 180x$

    C $x = 90y$

    D $x = 2y$

44. What is the charge for a repair that
    takes 1.5 hours?

    A $360   C $150

    B $270   D $135

Summer Homework Packet

Use the graph for 45–47.
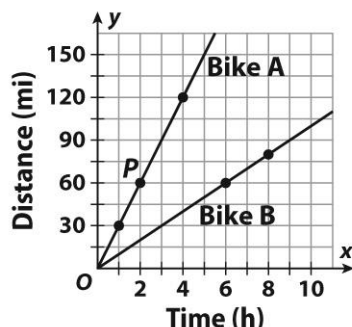
45. What are the coordinates of point *P*?

   A (2, 8)   C (60, 2)

   B (2, 60)   D (60, 8)

46. What is the dependent variable?

   A Bike A   C time

   B Bike B   D distance

47. Which equation represents Bike B?

   A $y = 6x$

   B $y = 10x$

   C $y = 60x$

   D $y = 80x$

48. A parallelogram has a base of 16 centimeters and a height of 4 centimeters. What is the area of the parallelogram?

   A 16 cm²

   B 32 cm²

   C 64 cm²

   D 128 cm²

49. A rectangular prism has a volume of 577.2 cubic feet. The prism is 5.2 feet long and 7.4 feet wide. What is the height of the prism?

   A 15 ft   C 78 ft

   B 39 ft   D 111 ft

50. What is the area of the trapezoid below?
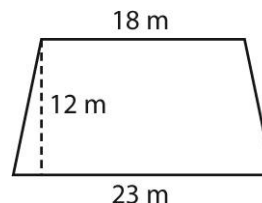
   A 216 m²   C 2,484 m²

   B 246 m²   D 4,968 m²

51. A right triangle has a height of 21 centimeters and a base of 11.6 centimeters. What is the area of the triangle?

   A 121.8 cm²   C 487.2 cm²

   B 243.6 cm²   D 5,115.6 cm²

52. What is the area of the rhombus shown below?

   A 3 in²   C 208 in²

   B 104 in²   D 416 in²

53. A triangle has an area of 221.16 square inches. The height of the triangle is 29.1 inches. What is the length of the base of the triangle?

   A 7.6 in.

   B 15.2 in.

   C 30.4 in.

54. A lawn in the shape of a trapezoid has an area of 1,833 square meters. The length of one base is 52 meters, and the length of the other base is 42 meters. What is the height of the trapezoid?
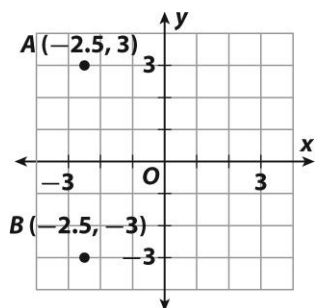
   A 35.25 m

   B 39 m

   C 43.6 m

Summer Homework Packet
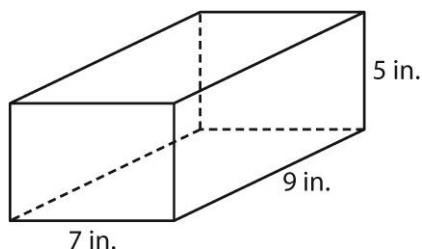
55. What is the area of the polygon shown below?
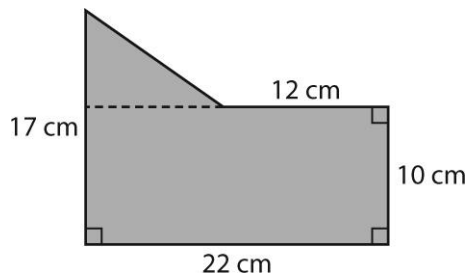
A 112 cm² C 160 cm²

B 136 cm² D 255 cm²

56. What is the distance between points *A* and *B* on the grid?

A 3 units C 6 units

B 4.5 units D 6.5 units

57. Charlene is wrapping the box below. How much wrapping paper will she need?
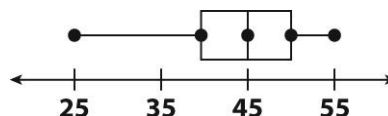

A 90 in² C 178 in²

B 153 in² D 286 in²

58. A swimming pool in the shape of a rectangular prism is 30 feet long, $15\frac{1}{2}$ feet wide, and 6 feet deep. How much water could the swimming pool hold?

A 465 ft³ C 1,860 ft³

B 930 ft³ D 2,790 ft³

59. What is the median of the data represented in the box plot below?

A 25 C 45

B 35 D 55

60. What is the range of the data represented in the dot plot below?
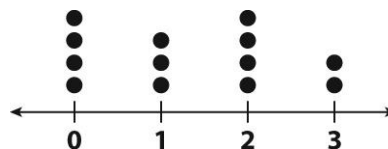
A 0 C 2

B 1 D 3

61. Sandra worked 6.2 hours on Wednesday, 5.5 hours on Thursday, and 3.5 hours on Friday. Which of the following is closest to the mean number of hours she worked over the three-day period?

A 3 h C 5 h

B 4 h D 6 h

Summer Homework Packet

62. The histogram below shows the number of hours per month students in Mr. Carter's class watch television. How many students watch television between 11 and 20 hours per month?
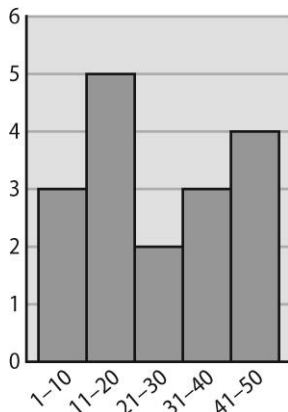

A 2

B 4

C 5

D 10

63. For 10 days in a row, Fiona and Gary timed how long they took to brush their teeth.

a. Find the mean absolute deviation of Fiona's times to the nearest hundredth.

Fiona's Time (seconds)
90, 85, 93, 97, 88, 91, 105, 98, 97, 96, 99, 98

_____

b. The mean absolute deviation of Gary's times was 16.83. Which person showed less variability in their teeth-brushing time?

_____

_____

64. Toni is designing a rug using a coordinate plane. She uses polygon *ABCD* with vertices *A*(6, 2), *B*(6, −2), *C*(−2, −2), and *D*(−2, 2). Each unit on the grid represents two feet. Plot the polygon on the grid below and find the area of the actual rug.

_____
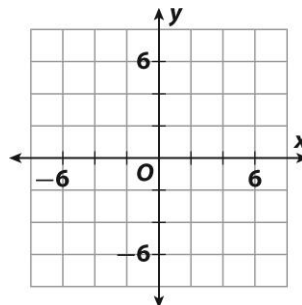
65. Ava's dog weighs 56 kilograms. Marty's dog weighs $\frac{7}{8}$ as much. How much does Marty's dog weigh?

_____

66. Hayley cut a $10\frac{2}{3}$-foot rope into pieces that are each $\frac{8}{9}$ of a foot long. How many pieces of rope did she cut?

_____

67. A caterpillar crawls 25 inches in one minute. How far can it crawl in 4.5 minutes?
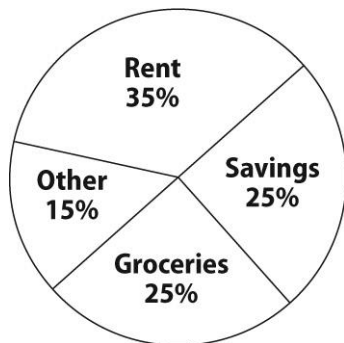
_____

Summer Homework Packet

68. Jungwon has $41.25. Notepads cost $3.75 each. How many notepads can Jungwon buy?

   _____

69. Noah bought 5 pounds of onions at $2 per pound, a bag of salad greens for $4, and 2 boxes of cereal for $3 each. How much money did he spend?

   _____

70. Oliver's total monthly budget is shown in the circle graph below.

   Oliver's monthly budget is $2,500. How much money does he save each month?

   _____

71. Sara bought a 24-ounce can of tomato sauce for $8.40. What is the unit price per ounce?

   _____

72. Conrad bought 2 gallons of bottled water at the supermarket. How many cups of water did he buy?

   _____

73. The table below shows the fees David charges for yard work.

   David's Yard Work Fees

Hours	2	4	6
Fee ($)	70	140	210

   How much money does David charge for yard work that takes 4.5 hours?

   _____

74. A falcon can fly at a speed of 87 kilometers per hour. A goose can fly at a speed of 78 kilometers per hour. Suppose a falcon and a goose each fly for 6 hours. How much farther will the falcon fly?

   _____

75. On a city map, 2.5 inches represents 5 miles. The library and the bank are 3 inches apart on the map. What is the actual distance between the library and the bank?

   _____

76. What is the value of the expression below?

$$(7)^3$$

   _____

77. Use the order of operations to simplify the expression below.

$$975 \div 3 - (12 - 9)^3$$

   _____

Summer Homework Packet

78. Evaluate the expression below for $x = 15$.

$$5(x + 7)$$

_____

79. Last year, the tree in Pedro's front yard was 5.6 feet tall. This year, the tree is 2 feet less than the height of Pedro's house. Pedro's house is 17 feet tall. How tall is the tree?

_____

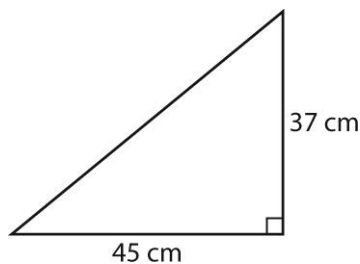80. A parallelogram has a base of 45 meters and a height of 11 meters. What is the area of the parallelogram?

_____

81. A rectangular prism has a volume of 711.68 cubic inches. The prism is 4 inches long and 12.8 inches wide. What is the height of the prism?
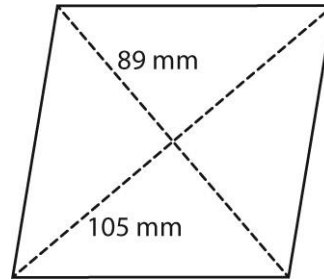
_____

82. What is the area of the triangle shown below?

37 cm

45 cm

_____

83. What is the area of the rhombus shown below?

89 mm

105 mm

_____

84. A triangle has an area of 227.04 square inches. The length of the base of the triangle is 47.3 inches. What is the height of the triangle?

_____

85. A field in the shape of a trapezoid has an area of 13,687.5 square yards. The length of one base is 150 yards, and the length of the other base is 215 yards. What is the height of the trapezoid?

_____

Name _____ Date _____ Class_____

Holt McDougal Mathematics