Name: _____ Class: _____ Date: _____

INCOMING GRADE 8 MATHEMATICS
2021 SUMMER PACKET

Directions:

- Read and answer the questions carefully
- Record your answers to this cover page
- Show All Your Work to receive
- If you have IXL, practice the IXL skills below

Item #	Answer	Item #	Answer
1		41	
2		42	
3		43	
4		44	
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24		64	
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29		69	
30		70	
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40		80	

Domain	Need more Practice	✓	Next Step IXL
Expressions & Equations			(7-R.11) (7-R.13) (7-C.20) (7-N.2) (7-R.7) (7-S.6) (7-U.4) (7-T.4) (7-T.5) (7-T.7)
Numbers and Operations			(7-C.10) (7-G.16) (7-N.1) (7-B.4) (7-H.12) (7-H.16) (7-G.13) (7-G.14)
Fractions, Decimals, Ratios & Proportionality			(7-M.3) (7-J.4) (7-J.9) (7-K.6) (7-K.4) (7-K.1) (7-K.2) (7-L.5) (7-L.6) (7-K.10)
Measurement, Geometry, Statistics & Probability			(7-J.7) (7-J.8) (7-AA.14) (7-AA.5) (7-BB.16)

Score   %

Name _____

Expressions & Equation

Read each question. Then mark your answer on the sheet.

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1. Joan has $375.24 in a savings account. She deposits $37.50 each week and makes no withdrawals. Which expression represents the amount of money in the account in *w* weeks?

  A $375.24w + 37.50$

  B $375.24 + 37.50 + w$

  C $375.24 + 37.50w$

  D $(375.24 + 37.50)w$

---

2. Which expression is equivalent to $-\frac{3}{7}(x + 42)$?

  A $-\frac{3}{7}x + 42$

  B $-\frac{3}{7}x + 18$

  C $\frac{3}{7}x - 18$

  D $-\frac{3}{7}x - 18$

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3. Which expression is equivalent to $-4y + 7 + (-5) + (-5y)$?

  A $-9y + 12$ **C** $8y$

  B $-9y + 2$ **D** $-7y$

---

4. Which shows a way to factor the expression $12 - 30x$?

  A $-3(-4 - 10x)$

  B $-6(-2 + 5x)$

  C $3(-4 + 10x)$

  D $6(-2 - 5x)$

---

5. Miguel joins a gym that has a $40 membership fee and charges $22.50 per month. He also joins a martial arts class that charges $16 per month and an initial fee of $26. Which expression represents Miguel's total cost after *m* months of membership?

  A $66 + 38.50m$

  B $38.50 + 66m$

  C $56 + 48.50m$

  D $48.50 + 56m$

---

6. Which expression can be used to determine the volume of water in a rain barrel after *d* days if there were 179.2 gallons of water in the barrel and 10.6 gallons are used each day?

  A $10.6d - 179.2$

  B $179.2 + 10.6d$

  C $179.2 - 10.6d$

  D $10.6 - 179.2d$

---

7. Which expression is equivalent to $-3 + (7x + 13)$?

  A $2x + 10$

  B $7x + 10$

  C $-35x - 75$

  D $17x$

Expressions & Equations

Read each question. Then mark your answer on the sheet.

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8. Which shows two ways to factor the expression $12a - 60b + 36$?

A $4(-3a + 15b - 9)$; $-4(3a - 15b + 9)$

B $4(3a - 15b + 9)$; $-4(-3a + 15b - 9)$

C $6(2a - 10b + 6)$; $-6(-2a + 10b - 6)$

D $6(-2a + 10b - 6)$; $-6(2a - 10b + 6)$

---

9. Which expression is equivalent to $4.5b + 11.5 - 5.7b - 7.2$?

A $1.2b - 4.3$

B $10.2b + 18.7$

C $4.5b - 1.4$

D $-1.2b + 4.3$

---

10. Which expression is equivalent to $\frac{2}{3}n - \left(-7 - \frac{1}{5}n\right)$?

A $\frac{13}{15}n + 7$ **C** $\frac{7}{15}n + 7$

B $\frac{13}{15}n - 7$ **D** $\frac{7}{15}n - 7$

---

11. Nora is 16 years old. She writes the equation $4b = 16$, where b represents her younger brother's age. How old is Nora's younger brother?

A 3 years old

B 4 years old

C 6 years old

D 8 years old

---

12. Roland hikes a trail that is 16.5 miles long. He hikes x miles before he takes a rest. He then hikes 3.3 miles more to the end of the trail. How far did Roland hike before his rest?

A 19.8 miles

B 13.2 miles

C 5 miles

D 0.2 miles

---

13. Xavier and Anya played a game. Anya scored 26 points, which is 4 less than twice the number of points that Xavier scored. Which equation represents the numbers of points that Anya and Xavier scored?

A $2x = 26 - 4$

B $2x - 4 = 26$

C $4x - 2 = 26$

D $4x = 26 - 2$

---

14. Chen bought five ink cartridges for his printer online and paid $7.95 for shipping. His total cost was $67.20. Solve the equation $67.2 = 7.95 + 5c$ to find the cost, c, of one ink cartridge.

A $15.03   **C** $11.85

B $21.39   **D** $5.49

Name _____

Expressions & Equations

Read each question. Then mark your answer on the sheet.

15. Carmen has $46.91 on a gift card. She buys a book for $12.85. She also wants to buy a gift for her mom. Which inequality represents the amount of money, m, Carmen can spend on the gift?

A $46.91 > 12.85 + m$

B $46.91 < 12.85 + m$

C $46.91 \leq 12.85 + m$

D $46.91 \geq 12.85 + m$

16. Solve the inequality $3\frac{3}{5} + x \leq -8\frac{1}{2}$.

A $x \leq -4\frac{9}{10}$ **C** $x < -4\frac{9}{10}$

B $x \leq -12\frac{1}{10}$ **D** $x < -12\frac{1}{10}$

17. Jae practiced baseball for 1.4 hours yesterday. He wants to practice baseball at least 7 hours this week. What inequality can Jae use to find the additional number of days, d, he must practice if each practice is 1.4 hours?

A $1.4 + 1.4d > 7$ **C** $1.4 + 1.4d \leq 7$

B $1.4 + 1.4d < 7$ **D** $1.4 + 1.4d \geq 7$

18. Which number is a solution for the inequality $-3.4t > -12.58$?

A 5.1   **C** 3.7

B 4.8   **D** 2.6

19. Latoya has $12 to spend on bowling. Shoe rental is $3.75. Each game is $2.25. What is the greatest number of games Latoya can play?

A 1 game   **C** 3 games

B 2 games   **D** 4 games

20. Solve the inequality $-2(x + 4) \leq -20$.

A $x \geq 6$ **C** $x \leq 6$

B $x \geq -12$ **D** $x \leq -12$

21. A chef has 18.75 pounds of meat. He uses 6 pounds of meat for meatloaf and 0.25 pound in each burger he makes. Which shows the correct inequality and its solution for the possible number of burgers the chef can make?

A $18.75 \leq 6 + 0.25b$; At least 51 burgers

B $18.75 \geq 6 + 0.25b$; At most 51 burgers

C $18.75 > 6 + 0.25b$; Fewer than 51 burgers

D $18.75 < 6 + 0.25b$; Greater than 51 burgers

Name _____

Numbers and Operations

Read each question. Then mark your answer on the sheet.

22. Solve $\frac{3}{7} \div \frac{1}{2}$.

A $\frac{3}{14}$ **C** $1\frac{1}{6}$

B $\frac{6}{7}$ **D** $4\frac{2}{3}$

23. Corey has 6.24 pounds of unpopped popcorn. After movie night, she has 3.75 pounds remaining. How many pounds of popcorn did Corey use?

A 3.54 pounds

B 3.46 pounds

C 2.56 pounds

D 2.49 pounds

24. An elevator starts at the fourth floor. It moves up to the eighth floor, then down to the second floor. Which integers represent the changes in the elevator's position?

A 4 and −6

B −4 and 6

C 8 and 2

D 8 and −2

25. Which comparison is true?

A $-16 = |16|$

B $|-16| = |16|$

C $-16 > 16$

D $|-16| < 16$

26. Victor has $580 in his checking account. He pays $50 for a gift card. Which integer represents the change in Victor's account?

A −50

B 50

C −530

D 530

27. Four teams of cave explorers set out from a cave opening. Based on their positions relative to the cave opening, which team has traveled farthest below the opening?

A Team A is at −500 feet.

B Team B is at 200 feet.

C Team C is at 300 feet.

D Team D is at −600 feet.

28. What is the value of the expression $-9 - (-4)$?

A 5   **C** −5

B 13   **D** −13

29. The temperature was 8°C. It dropped 15°C during the night. What is the new temperature?

A 7°C   **C** −7°C

B 23°C   **D** −23°C

Name _____

Numbers and Operations

Read each question. Then mark your answer on the sheet.

30. What is the product of $(-9) \cdot (4)$?

A -36 **C** 13

B -5 **D** 36

31. Which expression is equivalent to -6?

A $\frac{-24}{-4}$ **C** $-\frac{-18}{3}$

B $\frac{30}{5}$ **D** $\frac{12}{-2}$

32. A pelican flying 25.2 feet above the water's surface sees a fish swimming 3.6 feet below the surface. What is the distance between the pelican and the fish?

A 90.72 feet

B 28.8 feet

C 21.6 feet

D 7.0 feet

33. What is the value of the expression $-9\frac{5}{6} - 6\frac{3}{4}$?

A $16\frac{7}{12}$

B $3\frac{1}{12}$

C $-3\frac{1}{12}$

D $-16\frac{7}{12}$

34. Mr. Ruiz has $438.60 taken from his account each month to pay for the loan on his car. What is the change in the account caused by 4 months of payments?

A $-\$1,754.40$

B $-\$109.65$

C $\$109.65$

D $\$1,754.40$

35. Each cat at the animal shelter gets $\frac{5}{6}$ pound of food. Allie has $9\frac{1}{2}$ pounds of cat food. How many cats can Allie feed?

A 7   **C** 11

B 9   **D** 13

36. Which of the following shows $26\frac{79}{200}$ as a decimal?

A 26.395

B $26.\overline{4}$

C $26.\overline{79}$

D 26.79

37. Which of the following shows $0.\overline{62}$ as a fraction?

A $6\frac{2}{100}$ **C** $\frac{62}{9}$

B $\frac{62}{99}$ **D** $\frac{62}{100}$

Name _____

Fractions, Decimals, Ratios, and Proportionality

Read each question. Then mark your answer on the sheet.

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38. In the last 6 days, Laura has jogged 39 miles. At what rate did Laura jog each day?

A 234 miles per day

B 33 miles per day

C 6.5 miles per day

D 0.15 mile per day

---

39. Joey's dog eats 5.6 pounds of food in 16 days. At what rate does Joey's dog eat?

A 89.6 pounds per day

B 10.4 pounds per day

C 2.86 pounds per day

D 0.35 pound per day

---

40. The table shows two brands of granola bar. Which comparison of the cost of the granola bars is true?

	Cost	Number of Bars
Brand A	$4.00	5
Brand B	$7.20	8

A Brand B costs about $1.07 more per bar than Brand A.

B Brand A costs $0.10 less per bar than Brand B.

C Brand A costs $3.20 less per bar than Brand B.

D Brand B costs about $0.90 more per bar than Brand A.

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41. An engineer collects information about four machines that fill peanut butter jars. Which machine fills jars at the fastest rate?

A Machine A: 1,260 jars in 60 minutes

B Machine B: 1,120 jars in 70 minutes

C Machine C: 1,710 jars in 90 minutes

D Machine D: 1,200 jars in 80 minutes

Use the table for Exercises 42–43.

x	40	64	24	104
y	25	40	15	

42. What is the constant of proportionality for the data in the table?

A $\frac{3}{4}$ **C** $\frac{5}{8}$

B $\frac{8}{5}$ **D** $\frac{4}{3}$

---

43. What y-value completes the table?

A 84

B 65

C 30

D 13

Fractions, Decimals, Ratios, and Proportionality

Read each question. Then mark your answer on the sheet.

44. Which equation represents a proportional relationship between x and y?

A $k \div x = y$

B $k - x = y$

C $k + x = y$

D $k \times x = y$

45. Tia earns $32.00 for 4 hours of tutoring. How much would Tia earn for 9.5 hours?

A $432   **C** $76

B $304   **D** $8

46. Linh's car travels 112.75 miles on 5.5 gallons of gas. How far will it travel on 7.4 gallons?

A 834.35 miles

B 151.7 miles

C 27.9 miles

D 20.5 miles

47. Pilar can make 84 muffins using 14 cups of flour. How much flour would Pilar use to make 60 muffins?

A 3 cups

B 6 cups

C 10 cups

D 19.6 cups

48. Rick's school is 30 miles from the hospital. The school and hospital are $\frac{3}{5}$ inch apart on an online map. The hospital is 4 inches from the airport on the map. How far from the hospital is the airport?

A 200 miles

B 72 miles

C 50 miles

D 18 miles

49. What is 9 out of 100 as a percent?

A 90%

B 9%

C 0.9%

D 0.09%

50. Which shows 85% written as a decimal and as a fraction?

A $85.00; \frac{85}{1000}$

B $8.5; 8\frac{1}{2}$

C $8.05; 8\frac{1}{20}$

D $0.85; \frac{17}{20}$

Fractions, Decimals, Ratios, and Proportionality

Read each question. Then mark your answer on the sheet.

51. Of the 20 basketball games so far this year, Tracy has attended 14. What percent of basketball games has Tracy attended?

A 70%

B 34%

C 20%

D 14%

52. Which is the best estimate for 52% of 320?

A 52

B 144

C 160

D 192

53. Carla bought a crate of red and green apples for her bakery. The crate had 140 red apples, which were 70% of the apples in the crate. How many apples were in the crate?

0%   70%   100%
├─────────────────────────────────►
0   140
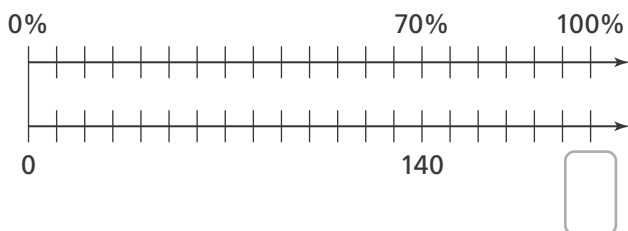
A 98 apples

B 200 apples

C 238 apples

D 340 apples

54. At the county fair, 12% of the people who attended received free water bottles. If 1,500 people received free water bottles, how many people went to the fair?

1,500 people

12%

100%
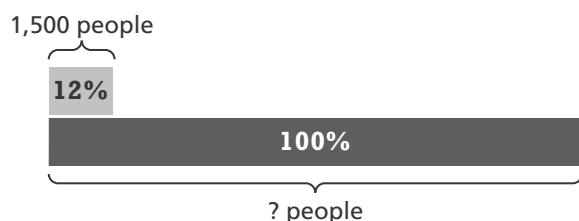
? people

A 18,000 people

B 12,500 people

C 1,680 people

D 180 people

55. Kenji sees a plastic bottle that is made using 40% recycled material. The empty bottle weighs 3 ounces. Which equation can Kenji use to calculate the amount of recycled material in the bottle, r?

A $3 \times 40\% = r$

B $40\% = 3 \times r$

C $40\% = 3 \div r$

D $3 \div 40\% = r$

56. The bill for lunch is $75. Anna wants to leave a 15% tip. How much money will Anna pay for lunch?

A $90.00   **C** $63.75

B $86.25   **D** $11.25

Fractions, Decimals, Ratios, and Proportionality

Read each question. Then mark your answer on the sheet.

57. The cost of Edwin's art supplies is $85.50. The sales tax is 8%. What is the cost of the supplies with tax?

  A $6.84

  B $78.66

  C $92.34

  D $93.50

58. Peggy buys a mirror for $20. She later sells it for $34. What is the percent markup on the mirror to the nearest percent?

$34
$20

  A 14%

  B 41%

  C 54%

  D 70%

59. A company changes the size of their ketchup bottle from 36 ounces to 32 ounces. What is the percent change in the amount of ketchup to the nearest percent?

  A 113% increase

  B 89% decrease

  C 13% increase

  D 11% decrease

60. Four students estimate how many marbles would fill a fish bowl. Their estimates are listed in the table. The fish bowl holds 360 marbles. Which student has less than a 15% error in their estimate?

Student	Estimate
Nora	50 marbles
Kim	400 marbles
Benito	140 marbles
Emaan	300 marbles

  A Nora

  B Kim

  C Benito

  D Emaan

61. Luke put $600 into a Certificate of Deposit (CD) account that earns 1.5% simple interest each year. What will be the amount of interest earned after 6 years?
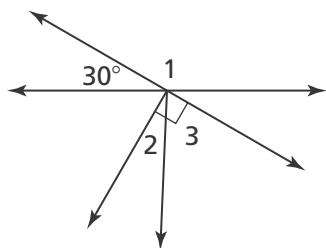
  A $654

  B $609

  C $54

  D $9

Measurement, Geometry, Data Analysis, and Probability

Read each question. Then mark your answer on the sheet.
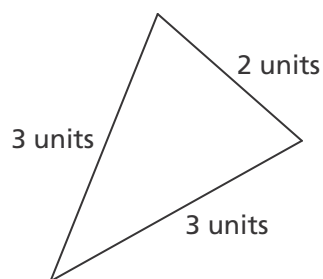
Use the picture for Exercises 62–63.

62. What is the measure of angle 1?

   A 60°   **C** 120°

   B 90°   **D** 150°
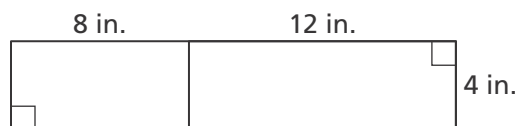
63. What is the sum of the measures of angle 2 and angle 3?

   A 180°   **C** 90°

   B 120°   **D** 60°

64. How should the triangle shown be classified?

   A Isosceles, Acute

   B Scalene, Acute

   C Isosceles, Obtuse

   D Scalene, Obtuse

Use the picture for Exercises 65–66.

65. Keisha cuts a triangle from a rectangular strip of cloth. What type of triangle did Keisha cut?

   A Scalene, Right

   B Scalene, Acute

   C Isosceles, Right

   D Isosceles, Acute

66. After Keisha cuts the triangle, what quadrilateral is left?

   A Rectangle

   B Trapezoid
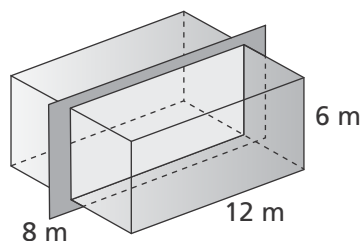
   C Parallelogram

   D Rhombus

Measurement, Geometry, Data Analysis, and Probability

Read each question. Then mark your answer on the sheet.

67. Which statement best describes a square?

A A special rectangle that has four right angles

B A special trapezoid that has four sides of equal length

C A special rectangle that has four sides of equal length

D A special trapezoid that has four right angles

**68.** What are the dimensions of the cross section of the rectangular prism?

A 4 cm by 12 cm

B 8 cm by 12 cm

C 8 cm by 6 cm

D 12 cm by 6 cm

69. Inez used 1-inch square tiles to make her initial. What is the area of the figure?
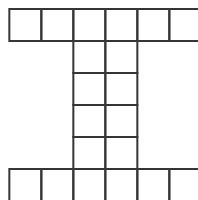
A 36 square inches

B 20 square inches

C 16 square inches

D 12 square inches

70. Trevor wants to put carpet on the floor of the room shown. What area of carpet does Trevor need?
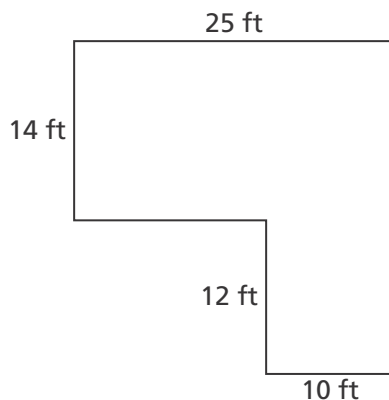
A 650 square feet

B 610 square feet

C 470 square feet

D 230 square feet

Measurement, Geometry, Data Analysis, and Probability

(continued)
Read each question. Then mark your answer on the sheet.

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71. A circular clock has a diameter of 40 inches. What is the circumference of the clock to the nearest tenth of an inch? Use 3.14 for π.

A 197.2 inches   **C** 62.8 inches

B 125.6 inches   **D** 20.0 inches

---

72. Tanya has 40 inches of ribbon to make a border around a circular frame. What is the diameter of the largest frame Tanya can use to the nearest inch? Use 3.14 for π.

A 48 inches

B 24 inches

C 20 inches

D 13 inches

---

73. An archer aims at a circular target that has a radius of 1.5 feet. What is the area of the target to the nearest tenth of a square foot? Use 3.14 for π.

A 1.8 square feet

B 7.1 square feet

C 9.4 square feet

D 28.3 square feet

---

74. A hotel has a circular tablecloth that is 14 feet across. When placed flat, what area does the tablecloth cover to the nearest tenth of a square foot? Use 3.14 for π.

A 22.0 square feet

B 44.0 square feet

C 153.9 square feet

D 615.4 square feet

---

75. Jason builds the rectangular prism shown using centimeter cubes. What is the volume of the rectangular prism?
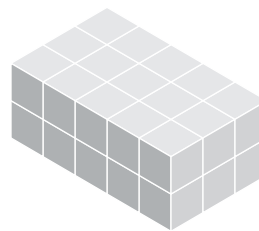
A 22 cubic centimeters

B 24 cubic centimeters

C 30 cubic centimeters

**D** 31 cubic centimeters

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Measurement, Geometry, Data Analysis, and Probability

Read each question. Then mark your answer on the sheet.

76. A box is 6 inches tall, and its bottom has an area of 420 square inches. What is the volume of the box?

  A 2,520 cubic inches

  B 426 cubic inches

  C 216 cubic inches

  D 70 cubic inches

77. Mrs. Thomson's class made a box plot of the weights of rocks they gathered. Which statement is supported by the box plot?
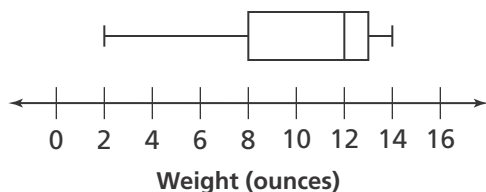
Weight (ounces)

  A The heaviest rock is 16 ounces.

  B More rocks are less than 12 ounces than greater than 12 ounces.

  C The average weight is 12 ounces.

  D One-half of the rocks are between 8 and 13 ounces.

Use the data set for Exercises 78–80.

Nina practiced piano for the following times last week.
30 minutes, 50 minutes, 70 minutes, 30 minutes, 0 minutes, 90 minutes, 75 minutes

78. What is the mean time Nina practiced to the nearest tenth of a minute?

  A 57.5 minutes

  B 50.0 minutes

  C 49.3 minutes

  D 30.0 minutes

79. What is the mode of the data to the nearest tenth of a minute?

  A 57.5 minutes

  B 50.0 minutes

  C 49.3 minutes

  D 30.0 minutes

80. Nina made a mistake and recorded 50 minutes instead of the 60 minutes she actually practiced one day. How does the change affect the range of the data?

  A The range remains the same at 30.

  B The range remains the same at 90.

  C The range increases by 10.

  D The range increases by 10 divided by 7.