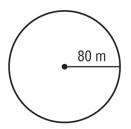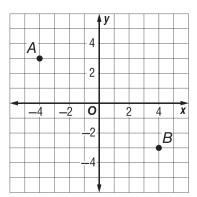# Summer Math Packet Grade 8 / Course 3

1. If Michelle rollerblades around a circular track with a radius of 80 meters, how far does she skate? Use 3.14 for π. Round to the nearest tenth.

A. 251.2 m

B. 502.4 m

C. 12,352 m

D. 20,096 m

2. A sprinter runs 400 meters in 54 seconds. What is the runner's average running rate in meters per second? Round to the nearest tenth.

F. 8.5 meters per second

G. 7.8 meters per second

H. 7.4 meters per second

I. 6.8 meters per second

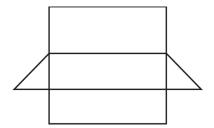**3. SHORT ANSWER** Find the slope of the line that passes through points A and B. Show your work.

4. The weight of an object on Mars varies directly as the weight of the object on Earth. A 90-pound object on Earth weighs 34 pounds on Mars. If an object weighs 135 pounds on Earth, how much does it weigh on Mars?

A. 51 pounds

B. 63 pounds

C. 219 pounds

D. 357 pounds

5. A jar contains 3 pennies, 5 nickels, 4 dimes, and 6 quarters. If a coin is selected at random, what is the probability of selecting a penny?

F. $\frac{5}{18}$

G. $\frac{2}{9}$

H. $\frac{1}{3}$

I. $\frac{1}{6}$

6. Which expression is equivalent to the algebraic expression below?

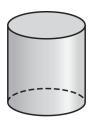$$3(-2x - 1)$$

A. $x + 2$

B. $x - 1$

C. $-6x - 3$

D. $-6x - 1$

7. SHORT ANSWER A cereal company is giving away 1 of 6 different prizes in each box of cereal. Describe a simulation you could use to estimate the number of boxes needed to get all 6 prizes.

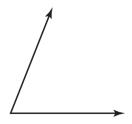**8.** Which three-dimensional figure is modeled by the net below?

   F. rectangular prism

   G. triangular prism

   H. square pyramid

   I. rectangular pyramid

9. What is the vertical cross section of a cylinder?

   A. circle

   B. oval

   C. rectangle

   D. point

10. What is the probability of tossing a penny and landing on heads three times in a row?

   F. $\frac{3}{2}$

   G. $\frac{1}{2}$

   H. $\frac{1}{4}$

   I. $\frac{1}{8}$

11. What type of angle is shown below?

   A. acute

   B. right

   C. obtuse

   D. straight

12. What is the scale factor of a drawing if the scale is 1 inch = 4 feet?

   F. $\frac{1}{48}$

   G. $\frac{1}{4}$

   H. 4

   I. 48

Summer Math Packet Grade 8 / Course 3 *(continued)*

13. Megan surveyed a random sample of 60 students at her school and found that 42 of them ride the bus to school each day. If there are 320 students at Megan's school, about how many of them ride the bus to school each day?

A. 348 students

B. 224 students

C. 188 students

D. 132 students

14. SHORT ANSWER The advertisement below shows the terms of a certificate of deposit (CD) at a local bank.

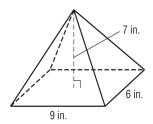Suppose Robert invests $1,200 in the CD for a

---

Super CD!

► Invest for 2 years and earn 2.75% simple annual interest.

►Invest for 3 years and earn 3.25% simple annual interest.

► Invest for 4 years and earn 3.75% simple annual interest.

See an associate today!

---

period of 3 years. How much interest will he earn? How much will Robert have after 3 years?

15. Last summer there were 88 players at Coach Rodriguez's basketball camp. This year there are 125% of this number of players. How many players are there at camp this year?

F. 70 players

G. 98 players

H. 106 players

I. 110 players

16. What is the volume of the pyramid shown below?

A. 126 in^3

B. 189 in^3

C. 221 in^3

D. 378 in^3

17. What is the constant rate of change of the ordered pairs?

x	y
1	2
3	10
5	18
7	26

F. 8

G. 6

H. 4

I. 2

18. What is the decimal equivalent of the fraction $\frac{32}{45}$?

A. 0.71

B. 0.7$\overline{1}$

C. 0.$\overline{71}$

D. 0.07$\overline{1}$

Summer Math Packet Grade 8 / Course 3 *(continued)*

19. Kyle wants to determine the most popular sport among students at his school. Which of the following will likely result in a biased sample?

F. surveying every 5th student standing in the lunch line

G surveying a random sample of 3 students from each homeroom

H. surveying a random sample of 25 students attending a school football game

I. surveying every 10th student who enters the school one morning

20. Last year there were 29 students at a creative writing workshop. This year 35 students attended the workshop. To the nearest tenth, what is the percent of change in the number of students in attendance?

A. 20.7% decrease

B. 20.7% increase

C. 17.1% decrease

D. 17.1% increase

21. In a recent survey, 88% of shoppers at a grocery store said they would be interested in a rewards program. If there were 450 shoppers surveyed, which proportion can be used to find the number who are interested in a rewards program?

F. $\dfrac{100}{88} = \dfrac{n}{450}$

G. $\dfrac{88}{450} = \dfrac{n}{100}$

H. $\dfrac{88}{100} = \dfrac{450}{n}$

I. $\dfrac{88}{100} = \dfrac{n}{450}$

22. Which property is illustrated by the equation below?

$$7 + (-7) = 0$$

A. Additive Inverse Property

B. Distributive Property

C. Associative Property of Addition

D. Additive Identity Property

23. Which of the following shows the rational numbers in order from least to greatest?
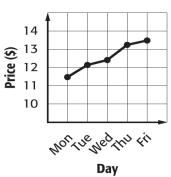
F. $81.5\%,\ 0.81\overline{5},\ \dfrac{33}{40}$

G. $81.5\%,\ \dfrac{33}{40},\ 0.81\overline{5}$
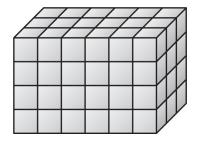
H. $0.81\overline{5},\ \dfrac{33}{40},\ 81.5\%$

I. $0.81\overline{5},\ 81.5\%,\ \dfrac{33}{40}$

24. SHORT ANSWER The line graph shows the performance of a stock over a 5-day period. Describe what is misleading about the data display.
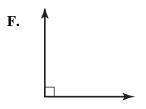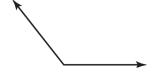
Stock Performance

Summer Math Packet Grade 8 / Course 3 *(continued)*

25. How many blocks were needed to make the rectangular prism below?

 A. 54 blocks

 B. 72 blocks

 C. 84 blocks

 D. 108 blocks

26. Which of the following angles would be classified as an acute angle?

 F.

 G.

 H.

 I.

27. SHORT ANSWER Ronaldo rolled a number cube 50 times. During these trials he rolled the number 5 a total of 7 times. Based on these trials, what is the probability of rolling a 5? Does this represent a theoretical or experimental probability? Explain.

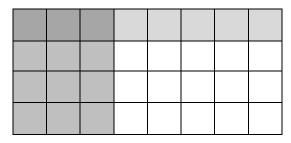**28.** Which of the following linear expressions *cannot* be factored?

 A. $15x + 22$

 B. $12x - 10$

 C. $8x - 2$

 D. $7x + 21$

29. Which of the following number sentences represent the model shown below?

 F. $\frac{3}{4} \times \frac{1}{8} = \frac{3}{32}$

 G. $\frac{3}{8} \times \frac{3}{4} = \frac{9}{32}$

 H. $\frac{3}{8} \times \frac{1}{4} = \frac{3}{32}$

 I. $\frac{1}{4} \times \frac{1}{3} = \frac{1}{12}$

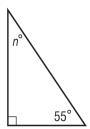**30.** Which of the following rational numbers is equivalent to a repeating decimal?
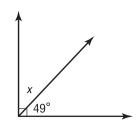
 A. $\frac{24}{60}$

 B. $\frac{30}{64}$

 C. $\frac{29}{50}$

 D. $\frac{35}{60}$

Summer Math Packet Grade 8 / Course 3 *(continued)*

31. The angle measures of a triangle are 33°, 94°, and 53°. Which of the following best classifies the triangle by its angle measures?

    F. acute

    G. obtuse

    H. right

     I. scalene

32. SHORT ANSWER Write and solve an equation to find the missing measure. Show your work.
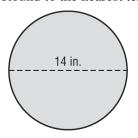

33. What is the measure of x in the figure below?

    A. 31°

    B. 41°

    C. 49°

    D. 131°

34. A large pizza at Angelo's Pizzeria has a diameter of 14 inches. What is the area of the pizza? Use 3.14 for π. Round to the nearest tenth.
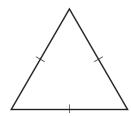

    F. 44.0 in^2

    G. 122.7 in^2

    H. 153.9 in^2

     I. 615.4 in^2

35. A home improvement store normally sells 20-foot extension ladders for $225. This week the ladders are discounted by 20%. What is the sale price of the ladders?

    A. $180

    B. $165

    C. $60

    D. $45

36. SHORT ANSWER A computer store builds custom computers by allowing customers to choose 1 of 4 different CPUs, 1 of 8 hard drives, and 1 of 3 video cards. How many different computers are possible?

Summer Math Packet Grade 8 / Course 3 *(continued)*

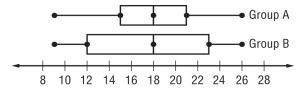**37.** Which of the following best classifies the triangle below by its angles and sides?

  F. acute, isosceles

  G. acute, equilateral

  H. acute, scalene

  I. obtuse, equilateral

38. In an obstacle course race, how many ways can five finalists be ordered?

  A. 1

  B. 5

  C. 24

  D. 120

39. SHORT ANSWER Compare and contrast the data represented in the double box plot below.

40. What is the solution to the equation below?

$$\frac{7}{8}\left(x - \frac{1}{2}\right) = -\frac{49}{80}$$

  F. $-\frac{6}{5}$

  G. $-\frac{1}{5}$

  H. $\frac{1}{5}$

  I. $\frac{6}{5}$

41. The table shows the number of yards jogged by Kaylee each minute.

Time(min)	Distance (yd)
1	175
2	350
3	525
4	700

If the pattern continues, how many yards will Kaylee have jogged after 20 minutes?

  A. 875 yd

  B. 1,750 yd

  C. 3,500 yd

  D. 3,850 yd

42. Simplify the expression below.

$$(-7x + 4) - (2x - 8)$$

  F. $-5x - 4$

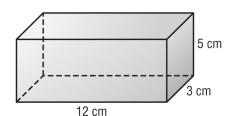 **G.** $-5x + 12$

  H. $-9x - 4$

  I. $-9x + 12$

Summer Math Packet Grade 8 / Course 3   *(continued)*

43. The table shows the number of different types of rides at an amusement park. Which type of data display would be best show the number of items in specific categories?

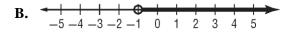| Type of Ride	Number
Water Slides	9
Rollercoasters	14
Spinning Rides	5
Funhouses	4

   A. bar graph

   B. circle graph

   C. line graph

   D. line plot

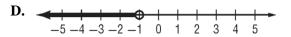**44. SHORT ANSWER** What is the surface area of the rectangular prism shown below?

5 cm
3 cm
12 cm

45. Angles C and E are supplementary. If $m\angle C = 77°$, what is the measure of angle E?

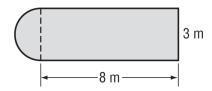   **F.** 13°

   G. 77°

   H. 103°

   I. 113°

46. How much simple interest would be earned on an investment of $16,000 if the money is invested for 20 years at an annual interest rate of 5.25%?

   A. $840

   B. $16,800

   C. $16,840

   D. $32,800

47. A muffin recipe calls for 8 cups of flour and yields 24 muffins. If Natalie wants to make 60 muffins, how much flour will she need?

   F. 180 cups

   G. 24 cups

   H. 20 cups

   I. 3.2 cups

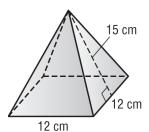**48.** Which number line shows the solution to the inequality below?

$$-4g < 4$$

A.

B.

C.

D.

Summer Math Packet Grade 8 / Course 3   *(continued)*

49. What is the area of the figure below? Use 3.14 for π. Round to the nearest tenth.

3 m

—8 m—

F. 24.0 m²

G. 27.5 m²

H. 31.1 m²

 I. 38.1 m²

50. Christy drove 132 miles in $2\frac{3}{4}$ hours. What was her average speed in miles per hour?

A. 48 miles per hour

B. 46 miles per hour

C. 44 miles per hour

D. 42 miles per hour

51. The square pyramid has base side lengths of 12 centimeters and a slant height of 15 centimeters. What is the total surface area of the pyramid?
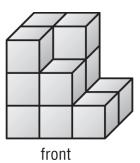

15 cm

12 cm

12 cm

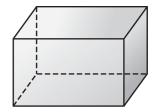**F.** 720 in²

G. 640 in²

H. 504 in²

 I. 360 in²

52. Suppose the length of each side of a square is decreased by 4 feet. If the perimeter of the square is now 32 feet, what was the original length of each side?

A. 48 ft

B. 44 ft

C. 16 ft

D. 12 ft

53. Which of the following is the simplest form of the algebraic expression shown below?

$$-11g + 5 + 6g - 2$$

F. $-6g + 4$

G. $-6g + 5$

H. $-5g + 5$

 I. $-5g + 3$

54. SHORT ANSWER Jamal built the three dimensional figure below using blocks. Front Sketch the front, side, and top views of the figure.

front

Summer Math Packet Grade 8 / Course 3   *(continued)*

55. Which of the following represents two dependent events?

   A. drawing a card from a deck, not replacing it, and drawing another card

   B. rolling a number cube and flipping a coin

   C. drawing a card from a deck, replacing it, and drawing another card

   D. rolling two numbers cubes

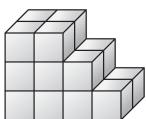**56.** Select the shape resulting from a horizontal cross section of the rectangular prism?

   F. rectangle

   G. oval

   H. triangle

   I. trapezoid

57. What is the solution to the equation?

$$4(x + 1) = -16$$

   A. –3

   B. –5

   C. –63

   D. –65

58. SHORT ANSWER Find the volume and surface area of the composite figure shown below if the figure is built with unit cubes.

59. Which operation should be performed last to solve the inequality below?

$$-7x + 4 > -10$$

   F. add 4 to each side

   G. subtract 4 from each side

   H. multiply each side by –7 and reverse the inequality symbol

   I. divide each side by –7 and reverse the inequality symbol

60. What is the product of the expression?

$$-7(-3)$$

   A. –21

   B. –10

   C. 10

   D. 21