Name _____ Date _____

Incoming Advanced Grade 7

Tell whether the two fractions form a proportion.

1. $\dfrac{3}{4}, \dfrac{16}{20}$

2. $\dfrac{5}{7}, \dfrac{30}{42}$

3. $\dfrac{4}{18}, \dfrac{6}{27}$

4. Use the ratio table to find the unit rate in dollars per ounce.

Amount (ounces)	12	16	20	24
Cost (dollars)	0.96	1.28	1.6	1.92

Order the numbers from least to greatest.

5. $\left|-5\right|, 6, -6, -\left|4\right|, -2$

6. $\dfrac{15}{2}, -8.5, -\dfrac{42}{5}, 10.2$

Solve the inequality.

7. $4x < 24$

8. $x + 8 \geq 12$

9. What is the volume of the prism?

5 cm

3 cm

4 cm
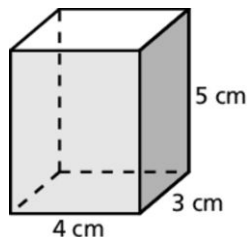
10. A map has a scale of 1 in. : 10 mi. On the map, the distance between two cities is 5 inches. What is the actual distance between the cities?

Simplify the expression.

11. $-4 + 11$

12. $-6 - 9$

13. $-7(-8)$

14. $60 \div (-4)$

15. $\left|-34\right|$

16. $\left|-(-41)\right|$

17. $17(-14)$

18. $12 - (-19)$

19. $\dfrac{4}{15} + \dfrac{5}{9}$

20. $-\dfrac{7}{8} \div \dfrac{3}{4}$

21. $\dfrac{13}{18} \bullet \dfrac{9}{25}$

22. $-\dfrac{7}{12} - \dfrac{1}{8}$

23. $(0.6)^2$

24. $8.37(-5.3)$

25. $0.95 - 3.49$

Answers

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

9. _____

10. _____

11. _____

12. _____

13. _____

14. _____

15. _____

16. _____

17. _____

18. _____

19. _____

20. _____

21. _____

22. _____

23. _____

24. _____

25. _____

26. The length and the width of a rectangle are both doubled. What is the ratio of the area of the larger rectangle to the area of the smaller rectangle?

Solve the equation.

27. $7 + x = -2$ **28.** $8 - x = 13$ **29.** $x - 11 = -5$

30. $3x - 2 = -5$ **31.** $8x + 5 = 21$ **32.** $9 - 2x = 23$

33. Use the properties of equality to show that the equation $6x + 3 = 27$ is equivalent to the equation $2x = 8$.

Find the coordinates of the point.

34. A **35.** B

36. C **37.** D
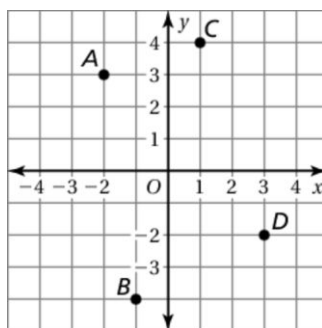
Complete the statement using $<$, $>$, **or** $=$.

38. 1 in. ___ 2.54 cm   **39.** 40 in. ___ 1 m   **40.** 7 L ___ 2 gal

Write the fraction as a decimal.

41. $\dfrac{3}{4}$ **42.** $\dfrac{5}{16}$ **43.** $\dfrac{21}{4}$

44. In a class, the teacher asks each person wearing red to name his or her favorite color. Is this sample representative of the entire class? Explain.

45. The data below are the test scores of the students in a math class.

97, 76, 84, 82, 90, 95, 77, 79, 80, 82, 84, 77, 100, 78, 87

Create a stem-and-leaf plot to represent the data.

46. Each of the letters in the word MATHEMATICS are written on separate index cards. The cards are then placed in a hat. What is the probability of randomly drawing an index card with a vowel on it from the hat?

Answers

26. _____

27. _____

28. _____

29. _____

30. _____

31. _____

32. _____

33. _____

34. _____

35. _____

36. _____

37. _____

38. ___See left.___

39. ___See left.___

40. ___See left.___

41. _____

42. _____

43. _____

44. _____

_____

_____

45. ___See left.___

46. _____

Name _____ Date _____

Incoming Advanced Seventh grade

Order the numbers from least to greatest.

1. $|-3|, 4, -4, -|2|, -1$

2. $\dfrac{21}{2}, -7.5, -\dfrac{36}{5}, 9.5$

Simplify the expression.

3. $4 - (-3)$ **4.** $-2 + 15$ **5.** $-3(4)$ **6.** $27 \div (-3)$

7. $-\dfrac{1}{6} + \dfrac{7}{12}$ **8.** $0.24 - 1.6$ **9.** $2\dfrac{3}{5} \bullet \left(-\dfrac{4}{3}\right)$ **10.** $-24 \div 3.2$

11. On an exam you get two points for each question answered correctly, zero points for each question left blank, and lose one point for each question answered incorrectly. What is your total score on the exam if you answer 22 questions correctly, leave 7 questions blank, and answer 5 questions incorrectly?

Solve.

12. $x + 2\dfrac{4}{5} = 3\dfrac{1}{6}$ **13.** $-0.4a + 1.2 = 3.6$

14. A pencil costs $0.30 and a pen costs $0.50. You buy 10 pencils and the total cost is $7.50. How many pens did you buy?

15. A farmer builds a fence to enclose a rectangular pasture. He uses 160 feet of fence. Find the total area of the pasture if it is 50 feet long.

Write the word sentence as an inequality.

16. 3 less than a number t is at most 7.

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

18. 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.

Solve the inequality. Graph the solution.

19. $a - 7 \le -4$ **20.** $-3m < 15$

21. 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.

22. The table shows the time in minutes *m* to download *s* songs. How long does it take to download   one song?

Minutes	1	3		5
Songs	2	6		10

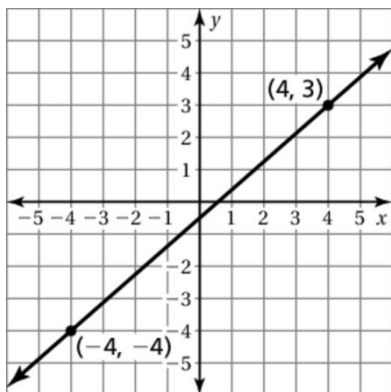**Tell whether the ratios form a proportion.**

23. $\dfrac{3}{8}, \dfrac{13}{40}$

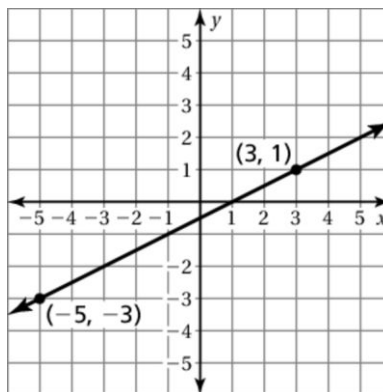**24.** $\dfrac{7}{9}, \dfrac{28}{36}$

25. Solve the proportion $\dfrac{7}{5} = \dfrac{21}{x}$.

Find the slope of the line.

26.

27.

28. If 30% of a number is 15, what is the number?

29. A store sign reads "Take 75% off the original price when you take an additional 15% off the sale price, which is 60% off the original price." Is the store's sign accurate? Explain.

30. You put $1200 in an account that earns 3% simple interest. Find the total amount in the account after four years.

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

31. 23°, 67°

32. 46°, 144°

Answers

21. _____

_____

_____

22. _____

23. _____

24. _____

25. _____

26. _____

27. _____

28. _____

29. _____

_____

_____

_____

30. _____

31. _____

32. _____

Classify the triangle.

33.

60°   30°

34.

45°   25°
110°

33. _____

_____

Find the value of x.

34. _____

35.

110°   x°

70°   110°

36.

x°
67°

108°   120°

35. _____

36. _____

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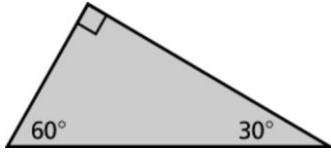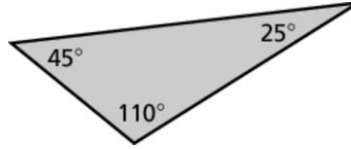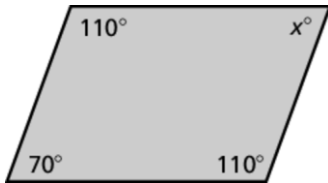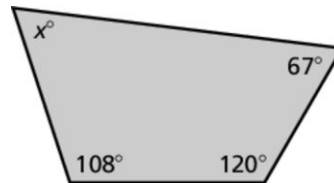
37. A scale drawing has a scale of 3 in. : 1 ft. What is the scale factor?

38. _____

38. The diameter of a circle is 14 inches. Find the circumference

and area. Use $\dfrac{22}{7}$ for π.

_____

39. _____

40. _____

39. Find the area of the figure. Use 3.14 :

6 m

3 m

4 m

41. _____

_____
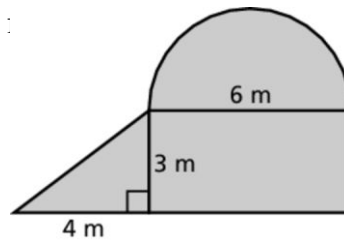
Find the volume and surface area of the solid.

40.

6 cm

4 cm

3 cm

41.

4 ft   5 ft

6 ft

6 ft
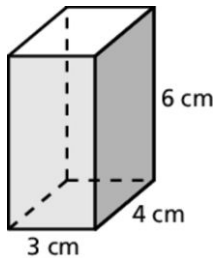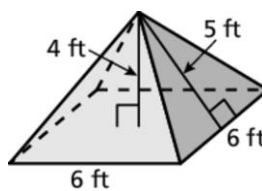
42. Find the surface area of the cylinder. Round your answer to the nearest tenth.

2 in.

4 in.
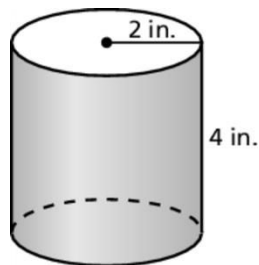
43. A manufacturer wants to make a box with a volume of 24 cubic feet.

   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.

44. 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?

45. 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.

46. Rolling a 5 then a 3

47. Rolling an even then an odd

48. 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?

Name _____ Date _____

Simplify the expression. Identify the properties used.

1. $4(x + 3)$

2. $(3.5 \bullet x) \bullet 4$

1. _____

3. Use a formula to find the area of the figure.

4. Tickets to a basketball game cost $3.50
for adults and $2 for children. Write an
expression that gives the total cost for
a adults and c children to attend the game. What is the total
cost for a family of 2 adults and 3 children to attend the game?

4.5

12

2. _____

_____

Perform the indicated operation.

3. _____

4. _____

5. $\dfrac{3}{7} \times \dfrac{4}{6}$

6. $4\dfrac{3}{5} \div \dfrac{1}{8}$

7. 0.45×3.2

8. $0.35\overline{)1.61}$

9. Find the area of the parallelogram.

$4\frac{4}{5}$ in.

$5\frac{2}{3}$ in.

5. _____

6. _____

7. _____

8. _____

9. _____

Evaluate the expression.

10. _____

10. $4 + 10 \div 2$

11. $7^2 - 3 \times 4$

11. _____

12. $(8 - 5)^3 - 3(1 + 2)$

13. $7 + 3(12 \div 4) - 3^2$

12. _____

13. _____

14. A recipe for a batch of 3 dozen chocolate chip cookies calls for
$3\dfrac{1}{2}$ cups of flour, 1 cup of sugar, and $2\dfrac{3}{4}$ cups of chocolate chips.
How much of each ingredient should be used to make 2 dozen cookies?

14. _____

_____

15. Find the area of the polygon with vertices of $A(2, 2)$, $B(2, 7)$, $C(8, 7)$,
and $D(4, 2)$.

15. _____

16. The ages of people on a jury are 56,
52, 42, 50, 58, 61, 38, 55, 69, 66, 56,
and 46. Make a stem-and-leaf plot
of the data.

16. _____See left._____

Order the integers from least to greatest.

17. 9, –3, 6, –2, –5

18. –8, –2, 4, 2, –1

19. A twelve-pack of juice costs $3.90. An eighteen-pack costs $5.49. Which is the better buy?

Write the fraction or mixed number as a percent.

20. $\dfrac{5}{8}$

21. $\dfrac{21}{5}$

22. $2\dfrac{3}{25}$

23. Chris, Mary Beth, and Allison are discussing the number of votes received by a candidate running for office. Chris says that approximately 46.2% of the votes went to the candidate, Mary Beth says that 231 out of every 500 votes went to the candidate, and Allison says that 0.462 of the votes went to the candidate. Are they in agreement? Explain your reasoning.

24. How many vertices does a rectangular pyramid have?

25. A pizza shop offers 30% off the price of a large pizza every Tuesday night. If the regular price is $25.50, what is the discounted price?

26. Write the ratio of baseballs to soccer balls. Explain what the ratio means.

27. You run 5 miles in 1 hour. At this rate, how long will it take you to run a marathon (approximately 26 miles)?

28. Determine the mean, median, mode(s), IQR, and range for the data.

       12, 12, 10, 8, 9, 9, 9, 11, 11, 8

29. Katie makes 65% of her shots from the free-throw line. Can you determine how many consecutive free-throws she must make in order to increase her percentage to 68%? Explain.

Answers

17. _____

18. _____

19. _____

20. _____

21. _____

22. _____

23. _____

   _____

   _____

   _____

24. _____

25. _____
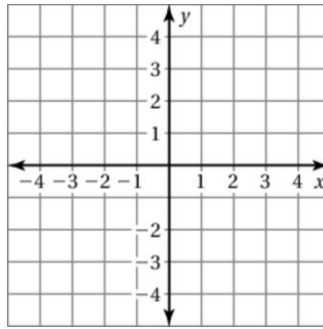
26. _____

   _____

27. _____

28. _____

   _____

   _____

   _____

   _____

29. _____

   _____

   _____

   _____

Plot the ordered pair in the coordinate plane.

30. $(1, -3)$ **31.** $(-2, 4)$

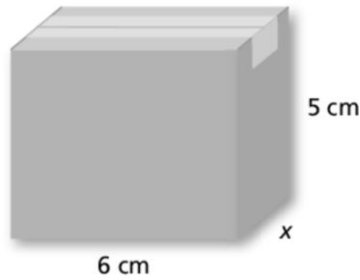**32.** $(0, -2)$ **33.** $(-4, -3)$

Solve the equation.

34. $\dfrac{3}{4}s = 12$ **35.** $2.5c = 20$

36. A farmer builds a fence to enclose a rectangular pasture. He uses 155 feet of fence. Find the total area of the pasture if it is 45.5 feet long.

37. Write and solve an equation to find the width of the box if its volume is 80 cubic centimeters. Then find its surface area.

5 cm

6 cm

x

38. The prices of backpacks at a store are $26, $22, $31, $18, $24, $22, $19, and $30. Find the mean absolute deviation of the prices.

Write the word sentence as an inequality.
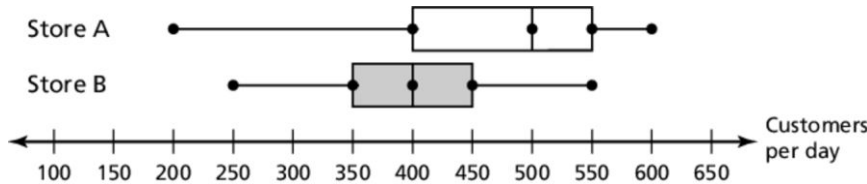
39. A number w is less than 5.5.   **40.** A number m is at least 7.

Determine whether the question is a statistical question. Explain.

41. How much does a 10-fluid ounce bottle of perfume cost?

42. Who was the President of the United States in 2010?

Use the box-and-whisker plot to answer the question.

Store A

Store B

Customers per day

100   150   200   250   300   350   400   450   500   550   600   650

43. How often does Store A have 550 or more customers per day?

44. Identify the shape of each distribution.

45. Which store has more customers?

Answers

30. ___See left.___

31. ___See left.___

32. ___See left.___

33. ___See left.___

34. _____

35. _____

36. _____

37. _____

_____

_____

38. _____

39. _____

40. _____

41. _____

_____

42. _____

_____

43. _____

44. _____
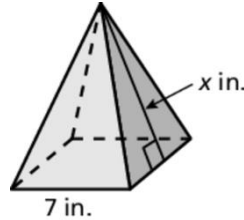
_____

45. _____

Summer Work

Find the GCF of the numbers.

46. 20, 150

47. 42, 105

48. You have piano lessons every fifth day and cooking lessons every sixth day. Today you have both lessons. In how many days will you have both lessons on the same day again?

49. The surface area of a square pyramid is 189 square inches. The side length of the base is 7 inches. What is the value of x?

x in.

7 in.

Find the missing values in the ratio table.

50.

Boys	3	9	
Girls	7		42

51.

Feet	72	57	
Yards	24		13

In Exercises 52–54, use the histogram that shows the number of school activities that students are involved in during the year.
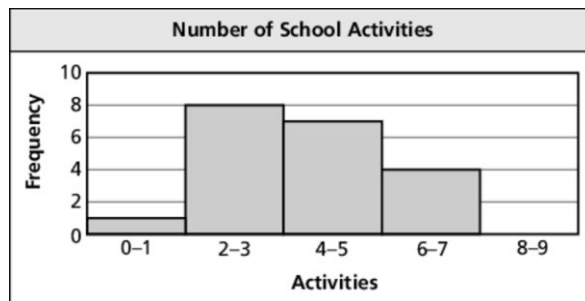
52. Which interval contains the fewest data values?

53. How many students are there?

54. Determine the percent of students that are involved in at least 4 or 5 activities.