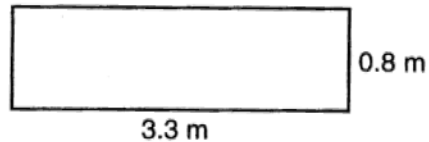


Grade 7 Summer Review

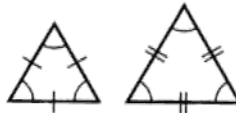
1. Find the value of $2^4 \cdot 4^3 \cdot 3$. 1.
 A. 672 B. 168 C. 839,808 D. 3,072

2. Find the perimeter of the rectangle. 2.



- A. 8.2 m B. 2.64 m
 C. 4.1 m D. 5.0 m
3. Solve $3c - 28 = -46$. 3.
 A. -6 B. -18 C. -10 D. 6
4. Express $\frac{1}{7}$ as a percent. 4.
 A. 7% B. 0.7% C. 14% D. 21%
5. Which of the following would best display data indicating the percent of American households owning 0 to 7 cars? 5.
 A. histogram B. bar graph C. line plot D. scatter plot

6. What is the relationship between the figures? 6.
 A. congruent B. similar
 C. congruent, similar D. none



7. Find the prime factorization for 897. 7.
 A. $5 \cdot 11 \cdot 19$ B. $3 \cdot 13 \cdot 23$ C. $3 \cdot 17 \cdot 19$ D. $2 \cdot 19 \cdot 29$

8. Express 0.000005 in scientific notation. 8.
 A. 5.0×10^{-6} B. 35.0×10^7 C. 5.0×10^{-5} D. 5.0×10^{-7}

9. Find the area of a triangle with base, 2.4 m, and height, 5.8 m. 9.
 A. 6.96 m^2 B. 13.92 m^2 C. 15 m^2 D. 7 m^2

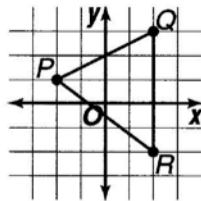
10. Solve $\frac{38}{r} = \frac{2}{5}$. 10
 A. 95 B. 90 C. 105 D. 100

11. 10 is what percent of 50? 11.
 A. 5% B. 2% C. 20% D. 500%

12. Find the distance between $(2, -4)$ and $(-3, 1)$. Round to the nearest tenth. 12.
 A. 7.1 units B. 8.0 units C. 3.2 units D. 5.0 units

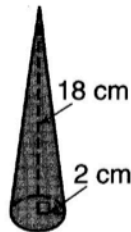
13. Which two ordered pairs are solutions of $y = -3x - 2$? 13.
 A. $(0, -2), (1, -5)$ B. $(2, -8), (0, 2)$
 C. $(1, 5), (0, -2)$ D. $(-2, -8), (-1, -1)$

14. Find the coordinates of Q' after a reflection over the x -axis. 14.
 A. $(-2, 3)$ B. $(-2, -3)$
 C. $(3, -2)$ D. $(2, -3)$



15. Find the area of a circle whose diameter is 8 meters. 15.
 A. 50.3 m^2 B. 43.96 m^2 C. 25.12 m^2 D. 201 m^2

16. Find the volume of the cone. Round to the nearest whole number. 16.
 A. 216 cm^3 B. 75 cm^3
 C. 226 cm^3 D. 30 cm^3



17. Find the value of $P(7, 3)$. 17.
 A. 210 B. 35 C. 21 D. 1,680

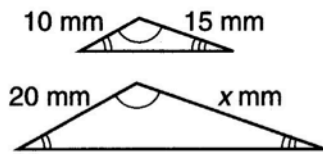
18. How many combinations are possible for 6 things taken 4 at a time? 18.
 A. 360 B. 30 C. 45 D. 15

19. Find the sum of $-2x^2 + 3x - 5$ and $x^2 - 5x + 8$. 19.
 A. $-x^2 - 2x + 3$ B. $x^2 - 2x + 3$
 C. $x^2 + 2x - 3$ D. $-x^2 - 2x - 3$

20. Find the product of $(3x + 1)$ and $(x + 3)$. 20.
 A. $3x^2 + 7x + 4$ B. $3x^2 + 10x + 4$
 C. $3x^2 + 7x + 3$ D. $3x^2 + 10x + 3$

21. Solve $p = 63 - 38$. 21.
22. Write an algebraic equation for *15 more than x is 17*. 22.
23. Write an inequality for this sentence. 23.
MaryAnne saved a certain amount of money each week, but after a year she has saved less than \$100.
24. The difference between two integers is 4. The greater integer is 20. Write an equation and solve. 24.
25. Evaluate $2 + (-11) - x + 9$ if $x = -3$. 25.
26. Express 44 wins and 44 losses as a ratio in simplest form. 26.
27. In Jeffrey's class, 21 of the 28 students are boys. What percent of the class is girls? 27.
28. **Use the test scores 83, 71, 83, 82, 72, 71, 75, 72, 73, and 41 to answer Questions 28 and 29.** 28.
28. Find the mean. 29.
29. Find the median.
30. Draw a quadrilateral that is not a parallelogram. 30.
31. What is the name for a triangle with no two sides congruent? 31.
32. Two triangles are congruent if two angles and the _____ are congruent. 32.
33. Solve $\frac{1}{3} = \frac{6}{7}w - 3\frac{2}{3}$. Write the solution in simplest form. 33.
34. Express 0.00000908 in scientific notation. 34.
35. Find the LCM for 18, 24, and 28. 35.
36. Find the circumference of a circle with a radius of 3.1 miles. Round to the nearest tenth. 36.
37. Find the next three terms in the sequence $2, 1, \frac{1}{2}, \dots$ 37.

38. These triangles are similar. Write a proportion and find the value of x .



38.

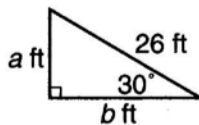
39. A steep hill has a gradient of 3:5, meaning that for every 5 feet of horizontal distance, there is a 3-foot increase in vertical distance. What is the height of the hill if the horizontal distance is 50 feet?

39.

40. What is the distance between $A(1, 1)$ and $B(5, 5)$ on a coordinate grid?

40.

41. On the triangle, what is the value of a ?



41.

A triangle is rotated 180° . The vertices of the rotated triangle are $A'(1, 3)$, $B'(-1, -3)$, and $C'(-2, 2)$. Use this information for Questions 42 and 43.

42.

42. What are the coordinates of the vertices of the original triangle?

43. List the coordinates of triangle $A'B'C'$ after a rotation of 90° counterclockwise.

43.

For Questions 44 and 45, use a cube that is 1.5 feet on each side.

44. Find the surface area of the cube to the nearest tenth.

44.

45. Find the volume of the cube to the nearest tenth.

45.

46. In a bag there are 4 blue marbles, 2 red marbles, and 6 green marbles. Once a marble is selected, it is not replaced. Find the probability of selecting a green marble and then a blue marble.

46.

47. What is the probability of rolling 2 number cubes and obtaining a double four?

47.

Express each polynomial in simplest form.

48. $x^2 + 4x^2y + 2(x^2 + 3x^2y)$

48.

49. $(8m^2 + 3m - 7) - (5m^2 + 6m)$

49.

50. Find the product of $(4x + 1)$ and $(x + 3)$.

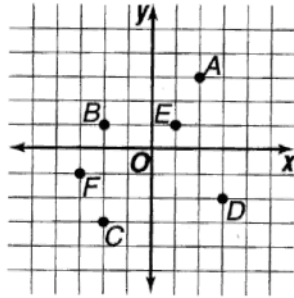
50.

1. The table below shows the number of students in a class with each hair color. How many students have brown hair?

Hair Color	Tally
Black	
Brown	
Blonde	
Red	

1.

2. Find the coordinates of point F .



2.

3. A jacket is on sale for \$52 after a 35% discount. What is the original price?

3.

4. Find the coordinate P' if $P(-1, 5)$ is reflected over the y -axis.

4.

5. Find the sum of $(2x + 1)$ and $(x^2 - 2x + 1)$.

5.

6. Find the next term in the arithmetic sequence $-15, -9, -3, \dots$

6.

7. If you divide one-fifth of a pizza into 2 equal pieces, what part of the whole pizza is each piece?

7.

8. Find $-\sqrt{81}$.

8.

9. Estimate $\frac{5}{6} + 3\frac{1}{9}$.

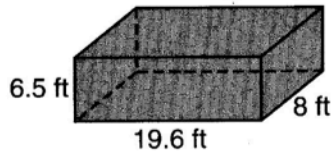
9.

10. Evaluate $\frac{a}{c} - b$ if $a = 27$, $b = 4$, and $c = 3$.

10.

11. Find the surface area of the rectangular prism.

11.



12. There are 6 black marbles, 14 blue marbles, 8 white marbles, and 12 clear marbles in a bag. If Andy chooses a second marble without replacing the first marble, what is $P(\text{black, then clear})$?

12.

13. Evaluate $6 \cdot 7 - 18 \div 6$. 13. .

14. Solve $-2b + 5 > 11$. 14. .

15. Solve $3n - 1 = -7$. 15. .

16. Express $\frac{4}{25}$ as a percent. 16. .

17. Express 26% as a fraction in simplest form. 17. .

18. Find 60% of 199. 18. .

19. Find the LCM of 9 and 42. 19. .

20. Find $(a^4) \div (-2a)$ if $a = 3$.

21.

21. Express $7\frac{5}{13}$ as a decimal rounded to the nearest tenth.

22.

22. Solve $7x = 56$.

23.

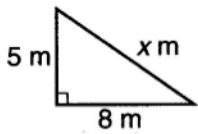
23. Express *twelve times a number minus six is less than or equal to negative eighteen* as an equation.

24.

24. Find the area of a square with sides of length 6.5 inches.

25.

25. Find the value of x in the right triangle to the nearest tenth.



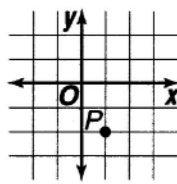
1. Find the value of $5^2 \cdot 3^3 \cdot 1^5 \cdot 4$. 1.
 A. 2,700 B. 1,800 C. 60 D. 4,500

2. Solve $5c < 20$. 2.
 A. $c > 4$ B. $c = 4$ C. $c < 4$ D. $c < 100$

3. Find the area of the figure. 3.
 A. 80 cm^2 B. 42 cm^2
 C. $1,680 \text{ cm}^2$ D. 105 cm^2



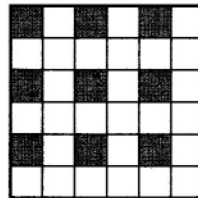
4. Find the ordered pair for point P . 4.
 A. (1, 2) B. (-2, 1)
 C. (1, -2) D. (-1, 2)



5. Solve $\frac{a}{4}(6) = 9$. 5.
 A. 0.75 B. 60 C. 1.3 D. 6

6. Solve $d = -5(-16)$. 6.
 A. -21 B. 80 C. 21 D. -80

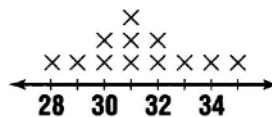
7. Express the ratio of the shaded area to the total squares in simplest form. 7.
 A. 9 to 36 B. 1 to 3
 C. 1 to 4 D. 1 to 5



8. Express 2 out of 6 as a percent. 8.
 A. 50% B. $33\frac{1}{3}\%$ C. 30% D. 24%

Use the line plot for Questions 9 and 10.

9. What is the mode? 9.
 A. 28 B. 31.3
 C. 31 D. 30.2



10. Find the mean to the nearest tenth. 10.
 A. 31.0 B. 29.2 C. 30.2 D. 31.3

11. What relationship should a scatter plot show between time studied and exam scores? 11.
A. negative B. none
C. positive D. positive and negative
12. Which figure does *not* have rotational symmetry? 12.
A. rhombus B. square
C. rectangle D. scalene triangle
13. A rhombus with four right angles is called a 13.
A. square. B. rectangle. C. triangle. D. trapezoid.
14. Triangles A and B are congruent. Triangle A has the following angles: 14.
 $90^\circ, 30^\circ, 60^\circ$. The angles of Triangle B are:
A. $90^\circ, 90^\circ, \text{ and } 90^\circ$. B. $90^\circ, 45^\circ, \text{ and } 45^\circ$.
C. $30^\circ, 30^\circ, \text{ and } 30^\circ$. D. $90^\circ, 30^\circ, \text{ and } 60^\circ$.
15. Write $\frac{66}{99}$ in simplest form. 15.
A. $\frac{22}{33}$ B. $\frac{1}{3}$ C. $\frac{2}{3}$ D. $\frac{5}{6}$
16. Find the prime factorization for 429. 16.
A. $3 \cdot 11 \cdot 13$ B. $5 \cdot 31$ C. $2 \cdot 17 \cdot 19$ D. $17 \cdot 19$
17. Express $1.\overline{5}$ as a mixed number in simplest form. 17.
A. $1\frac{1}{2}$ B. $1\frac{5}{9}$ C. $1\frac{5}{8}$ D. $1\frac{5}{11}$
18. The fifth term of a sequence is 2. The common difference is $\frac{1}{2}$. Find the first term of the sequence. 18.
A. 0 B. 1 C. $-\frac{1}{2}$ D. -1
19. Find the area of a trapezoid: base a , 14 mi; base b , 16 mi; height, 2 mi. 19.
A. 32 mi^2 B. 30 mi^2 C. 60 mi^2 D. 224 mi^2
20. Solve $-4\frac{3}{4} = 2\frac{1}{2}r$. 20.
A. $-2\frac{1}{4}$ B. -11.9 C. $-1\frac{9}{10}$ D. -3.2

21. Solve $3b - 2 < 4$ and indicate the solution on the number line. **21.**
22. Mark baked cookies and gave $\frac{3}{4}$ of them to Luisa. Luisa gave back 6 cookies. Mark ended up with 21 cookies. How many did he bake originally? **22.**
23. Write $4 \cdot 5 \cdot 9 \cdot 5 \cdot 4 \cdot 5$ using exponents. **23.**

Replace ● with $>$, $<$, or $=$ for Questions 24 and 25 to make a true sentence. **24.**

24. $|16| \bullet |-16|$ **25.** $0 \bullet -10$ **25.**

26. The sum of a number and -8 , plus 12 , is -16 . What is the number? **26.**

27. Solve $(-3)(-15)(2) = k$. **27.**

28. In a proportion, if $\frac{a}{b} = \frac{c}{d}$, then $ad = \underline{\quad}$. **28.**

29. Express 60% as a decimal. **29.**

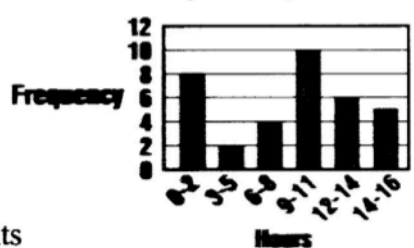
Replace ● with $<$, $>$, or $=$ to make a true sentence. **30.**

30. $9 \bullet 10\%$ of 90 **31.** 75% of $200 \bullet 120$ **31.**

Use the Weekly Computer Usage graph to answer Questions 32 and 33.

32. An eighth-grade class was polled to determine how many hours a week each student used a computer. For which interval is the frequency the greatest? **32.**

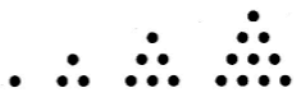
Weekly Computer Usage



33. What percent of the students use a computer 3–5 hours a week? **33.**

Give the best name for each figure in Questions 36 and 37.

36. four congruent sides and four congruent angles 36
37. opposite sides parallel and congruent 37
38. What two things must be the same for two triangles to be congruent? 38
39. What is the name for lines that are in the same plane but never intersect? 39
40. Find the prime factorization of 361. 40
41. Find the GCF of 48, 32, and 96. 41
42. Express 7.09×10^{-5} in standard form. 42
43. Each letter of the word MATHEMATICAL is written on 12 identical slips of paper and shuffled in a hat. A student draws one slip of paper. Find the probability of drawing an A or a T, $P(A \text{ or } T)$. 43
44. How many different ways are there to label the corners of a square with the letters A, B, C, and D? 44
47. Write the sixth term in the sequence $20, 10, 5, 2\frac{1}{2}, \dots$ 47
48. Find the circumference of the circle that has a radius of 4 meters to the nearest tenth. 48
49. Study the pattern of dots shown in the figures at the right. If the pattern continues, how many dots will be in the figure that has 10 dots in the bottom row? 49
50. Solve $1\frac{3}{4} = -\frac{1}{2} - \frac{3}{8}f$. Write the solution in simplest form. 50



Solve each problem.

1. If it costs 8 adults \$160 for tickets to an amusement park, how much will it cost 20 adults for tickets? **1.**
2. Camille can word process 3 pages in 20 minutes. How many minutes will it take her to word process 8 pages? **2.**
3. What percent of 80 is 16? **3.**
4. 15 is 25% of what number? **4.**
5. Of 48 people, 25% named grapefruit juice as their favorite fruit juice. To find out how many people preferred grapefruit juice, what percent proportion would you use? **5.**

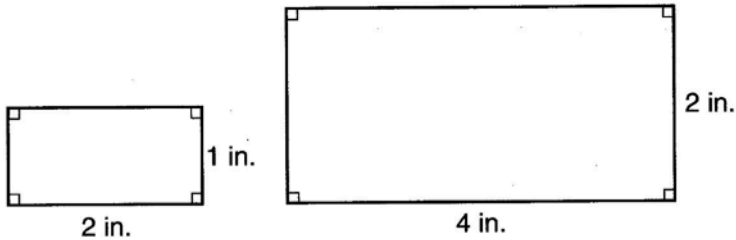
Write an equation in the form $RB = P$ for each problem.

Then solve.

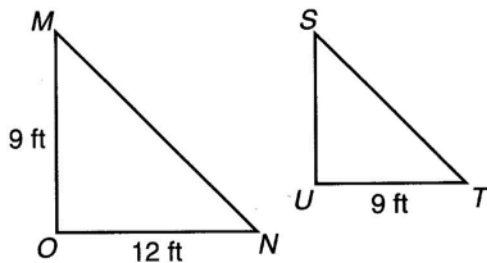
6. \$100 is 20% of what number? **6.**
7. 6 is what percent of 600? **7.**
8. Express 0.12% as a fraction or mixed number in simplest form. **8.**
9. Express 120% as a decimal and as a fraction or mixed number in simplest form. **9.**
10. A store buys a pair of pants from a manufacturer for \$25.00 and marks them up 20%. What is the price of the pants for the customer? **10.**
11. Find the amount of discount and the sale price of a cap that regularly sells for \$15 but is now 10% off. **11.**
12. Find the simple interest to the nearest cent on \$5,000 at 6.5% annually for 1 year. **12.**

13. Find the total amount in a savings account 1 year after \$250 is deposited at an annual interest rate of 11%. 13.

14. Determine whether the following polygons are similar. 14.



15. If triangles MNO and STU are similar, find the length of side \overline{SU} . 15.



16. At 7:00 P.M., a tree 20 meters tall casts a shadow of 30 meters. A utility pole located next to the tree casts a shadow of 12 meters. How tall is the pole? 16.

17. A tree casts a shadow 9 feet long at the same time that a building 54 feet tall casts an 18-foot shadow. How tall is the tree? 17.

The distance on a map is given. For Questions 18 and 19, find the actual distance if the scale on the map is 1 inch = 30 miles.

18. 4 inches 18.

19. $\frac{1}{2}$ inch 19.

20. Polygon $ABCD$ has vertices $A(-4, 0)$, $B(-2, 8)$, $C(2, 3)$, and $D(0, -1)$. Find the vertices for a dilation with a scale factor of 2. 20.

Solve each equation. Write the solution in simplest form.

1. $a = 4\frac{1}{6} + 3\frac{5}{6}$ 1.
2. $\frac{3}{10} + \frac{7}{10} = b$ 2.
3. $c = \frac{3}{4} - \frac{2}{5}$ 3.
4. $3\frac{1}{3} - 2\frac{1}{6} = j$ 4.
5. $d = \left(\frac{3}{4}\right)^2$ 5.
6. $\left(-\frac{5}{8}\right)\left(\frac{24}{35}\right) = m$ 6.
7. $t = 2\frac{1}{2} \div \frac{3}{4}$ 7.
8. $-3\frac{1}{3} \div \left(-6\frac{2}{3}\right) = f$ 8.
9. $7\frac{2}{3} - 5\frac{1}{3} = k$ 9.
10. $18\frac{1}{2} + 2\frac{1}{4} = p$ 10.
11. $3\frac{1}{3} \cdot 7\frac{1}{5} = z$ 11.
12. $1\frac{1}{2}g = 4\frac{3}{4}$ 12.
13. $3 = h + 1\frac{2}{3}$ 13.
14. $\frac{m}{2} + 3.5 = 5.7$ 14.
15. What is the multiplicative inverse of $2\frac{1}{2}$? 15.
16. What is the multiplicative inverse of $\frac{2}{3}$? 16.
17. Find the fifth term in the sequence $1, 1\frac{3}{4}, 2\frac{1}{2}, 3\frac{1}{4}, \dots$ 17.
18. Write the first four terms in the sequence with a common difference of -3 . The first term is 5. 18.
19. The fifth term in a sequence is 8. The common ratio is -4 . Find the first four terms. 19.

Solve each inequality. Graph the solution on the number line.

20. $1\frac{3}{8} - r \leq \frac{7}{8}$ 20.

21. $-1 + r \leq 3$ 21.

22. $2u - 2\frac{1}{4} > 7\frac{3}{4}$ 22.

23. $\frac{1}{12}r > 1\frac{1}{4}$ 23.

Find the area of each figure.

24. triangle with base, 11 m; height, 16 m 24.

25. triangle with base, 4 ft; height, 3 ft 25.

26. trapezoid with base a , 18 in.; base b , 22 in.; height, 14 in. 26.

27. trapezoid with base a , 6 m; base b , 7 m; height, 4 m 27.

Find the circumference of each circle described. Use $\frac{22}{7}$ or 3.14 for π . Round decimal answers to the nearest tenth.

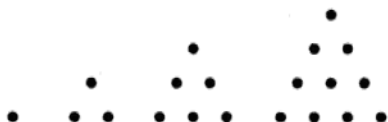
28. The radius is 3.5 yards. 28.

29. The radius is 7 feet. 29.

30. The diameter is 21 meters. 30.

31. The diameter is $8\frac{1}{6}$ centimeters. 31.

32. Study the pattern of dots shown. If the pattern continues, how many dots will be in the figure that has 9 dots in the bottom row? 32.



33. Nicholas finds he walks faster at the start of a walk than after he has been walking for a while. The table lists the time it takes Nicholas to walk quarter miles. If this pattern continues, how long will it take him to walk the eighth quarter mile? 33

First Quarter Mile	3 minutes
Second Quarter Mile	4 minutes
Third Quarter Mile	5 minutes
Fourth Quarter Mile	6 minutes