

# Welcome to 8<sup>th</sup> Grade Math!



## Extra Practice Summer Assignment

The 8th Grade Math Department has put together a list of fun summer math games for you to use during the summer so you don't forget all of the math facts that you have learned in 7th grade. Please visit some of these sites throughout the summer and have fun. **At the end of this list are some practice problems.** Test yourself and see how much you know! The answers are on the last page.

## Websites

Use the following websites to assist in your review. The websites present the materials in a game format.

### Decimals

Where's your point!



- Ordering decimals [http://www.softschools.com/math/ordering\\_numbers/ordering\\_decimals/](http://www.softschools.com/math/ordering_numbers/ordering_decimals/)
- Ordering decimals <http://www.kidsmathgamesonline.com/numbers/decimals.html>
- Decimal number line (5 questions per round)  
[http://www.softschools.com/math/decimals/decimal\\_number\\_line/](http://www.softschools.com/math/decimals/decimal_number_line/)
- Inequalities with decimals  
[http://www.softschools.com/math/decimals/inequalities\\_with\\_decimals/](http://www.softschools.com/math/decimals/inequalities_with_decimals/)
- Decimals Matching (decimal & picture)  
[http://www.softschools.com/math/decimals/matching\\_decimals\\_game/](http://www.softschools.com/math/decimals/matching_decimals_game/)

- Decimals (multiple activities) <http://gamequarium.com/decimals.html>

## Order of Operations



- Order of Operations [http://www.softschools.com/math/order\\_of\\_operations/games/](http://www.softschools.com/math/order_of_operations/games/)
- Order of Operations [http://www.mathplayground.com/order\\_of\\_operations.html](http://www.mathplayground.com/order_of_operations.html)

## Multiplication/Division



- Multiplication and Division Operations (Level 1) [http://www.softschools.com/math/arithmetic\\_operations/multiplication\\_division/1/](http://www.softschools.com/math/arithmetic_operations/multiplication_division/1/)
- Multiplication and Division Operations (Level 2) [http://www.softschools.com/math/arithmetic\\_operations/multiplication\\_division/2/](http://www.softschools.com/math/arithmetic_operations/multiplication_division/2/)
- Math Man Multiplication [http://www.softschools.com/math/games/fun/math\\_man/multiplication/](http://www.softschools.com/math/games/fun/math_man/multiplication/)
- Math Man Division [http://www.softschools.com/math/games/fun/math\\_man/division/](http://www.softschools.com/math/games/fun/math_man/division/)
- Multiplication (many activities) <http://www.multiplication.com/games/all-games>
- Speed Grid Multiplication <http://www.oswego.org/ocsd-web/games/SpeedGrid/Multiplication/urikamultires.html>

## **Addition/Subtraction/Multiplication/Division**

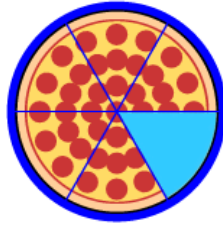
- Arithmetic Game (need to get to 0 by using add/sub/multi/div)  
[http://www.softschools.com/math/arithmic\\_operations/arithmic\\_operations\\_game/](http://www.softschools.com/math/arithmic_operations/arithmic_operations_game/)

### **Addition/Subtraction**



- Addition and Subtraction Operations (Basic)  
[http://www.softschools.com/math/arithmic\\_operations/addition\\_subtraction/basic/](http://www.softschools.com/math/arithmic_operations/addition_subtraction/basic/)
- Addition and Subtraction Operations (Level 1)  
[http://www.softschools.com/math/arithmic\\_operations/addition\\_subtraction/1/](http://www.softschools.com/math/arithmic_operations/addition_subtraction/1/)
- Addition and Subtraction Operations (Level 2)  
[http://www.softschools.com/math/arithmic\\_operations/addition\\_subtraction/2/](http://www.softschools.com/math/arithmic_operations/addition_subtraction/2/)
- Math Man Addition [http://www.softschools.com/math/games/fun/math\\_man/addition/](http://www.softschools.com/math/games/fun/math_man/addition/)
- Speed Grid Addition (Level 1) <http://www.oswego.org/ocsd-web/games/SpeedGrid/Addition/urikares.html>
- Speed Grid Addition (Level 2) <http://www.oswego.org/ocsd-web/games/SpeedGrid/Addition/urikaadd2res.html>
- Speed Grid Addition (Level 3) <http://www.oswego.org/ocsd-web/games/SpeedGrid/Addition/urikaadd3res.html>
- Math Man Subtraction [http://www.softschools.com/math/games/fun/math\\_man/subtraction/](http://www.softschools.com/math/games/fun/math_man/subtraction/)
- Speed Grid Subtraction (Level 1) <http://www.oswego.org/ocsd-web/games/SpeedGrid/Subtraction/urikasub1res.html>
- Speed Grid Subtraction (Level 2) <http://www.oswego.org/ocsd-web/games/SpeedGrid/Subtraction/urikasub2res.html>
- Speed Grid Subtraction (Level 3) <http://www.oswego.org/ocsd-web/games/SpeedGrid/Subtraction/urikasub3res.html>

## Fractions



- Pizza fractions (2 levels) <http://www.softschools.com/math/fractions/games/>
- Ordering fractions (least to greatest, greatest to least) [http://www.softschools.com/math/fractions/games/ordering\\_fractions/](http://www.softschools.com/math/fractions/games/ordering_fractions/)
- Fractions Addition [http://www.softschools.com/math/games/fractions\\_practice.jsp](http://www.softschools.com/math/games/fractions_practice.jsp)
- Fractions Subtraction [http://www.softschools.com/math/games/fractions\\_subtraction.jsp](http://www.softschools.com/math/games/fractions_subtraction.jsp)
- Fractions Matching [http://www.softschools.com/math/fractions/games/matching\\_fractions\\_game/](http://www.softschools.com/math/fractions/games/matching_fractions_game/)
- Fraction Game <http://illuminations.nctm.org/Activity.aspx?id=4148>



This packet is a review of the basic skills needed to perform well in 8<sup>th</sup> grade. It will be assumed that all students coming into 8<sup>th</sup> grade math will be proficient in these skills. The packet will not be collected but is a wonderful summer review of their skills.

A calculator should **not** be used to complete the summer assignment unless it is used to check your answers.

Also, please think about purchasing the TI34II, TI30XIIS or the Multiview calculator if you do not already have one.

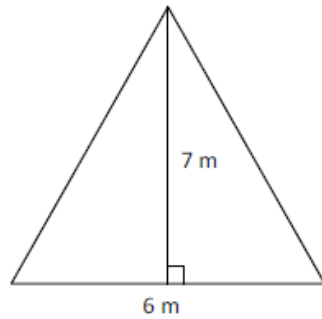
Have a nice summer. We are looking forward to seeing you all in September!

Your 8<sup>th</sup> Grade Math Teachers

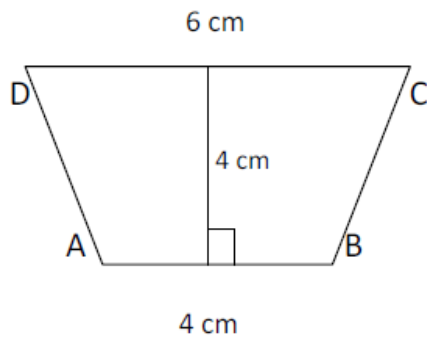
**REMEMBER**  
**NO CALCULATORS**

## Grade 8 Summer Packet 2014

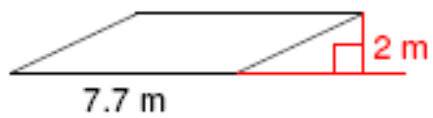
1. Find the area.



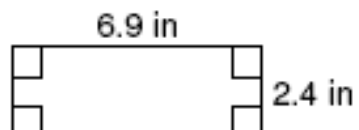
2. Find the area.



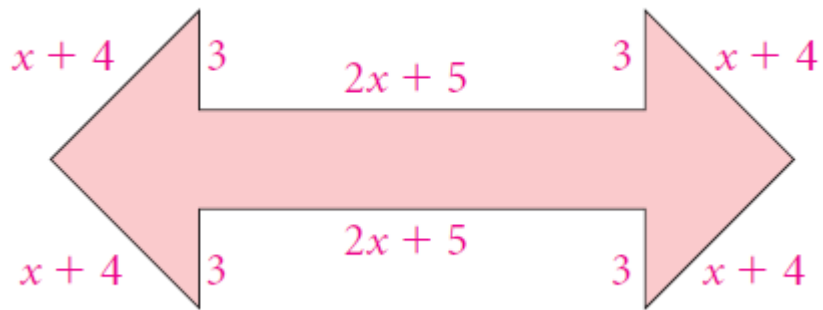
3. Find the area.



4. Find the area.



5. Write an expression for the perimeter of the figure below. Simplify the expression.



**Find the value of each expression. Show all steps.**

6.  $16 \div 4 + 18 \div 2$

7.  $6[5 + (14 - 8) \div 3]$

8.  $10(17 - 4) - 3(8 + 4)$

9.  $4[2(6 \cdot 4) - 8 \cdot 6]$

**Solve each equation.**

10.  $7 = \frac{x}{5} - 3$

11.  $19 = 3r - 7 - 5r$

12.  $5x + 6 - 6x + 2 = 19$

13.  $12x - 9 + 2x - x = -87$

**Write each fraction in simplest form, as a decimal, and as a percent.**

14.  $\frac{12}{20}$

15.  $\frac{16}{36}$

16.  $\frac{35}{77}$

**Simplify each expression.**

17.  $7(x-4)$

18.  $-2(-3x+4)$

19.  $\frac{2}{3}(6x+9)+4x$

**Simplify.**

20.  $-\frac{5}{24} \div \frac{7}{12}$

21.  $\frac{5}{6} \cdot \left(-1\frac{3}{10}\right)$

22.  $1\frac{1}{2} - 2\frac{4}{5}$

**Solve. Round to the nearest tenth.**

23. 30 is 75% of what number?

24. What is 78% of 40?

25. 26.6 is what percent of 53.2?

26. 54.6 is 65% of what number?

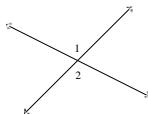
27. If angle A is 29 degrees, what is its complement?

28. If angle W is 54 degrees, what is its supplement?



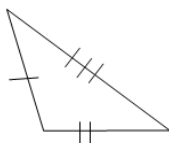
29. If angle A is 17 degrees and angle B is 42, are the angle complementary?

30. What is the relationship between angles 1 and 2?

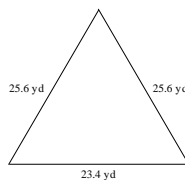


Classify each triangle by its **sides** and **angles**.

31.



32.



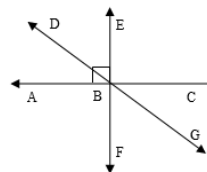
33. Classify all polygons from three sides to ten sides.

34. Use the figure at the left.

a. Find the measure of  $\angle ABD$  if the measure of  $\angle DBE = 24^\circ$ .

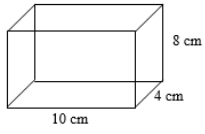
b. Using the figure above, name an angle **adjacent** to  $\angle EBC$ .

c. Using the figure above, name the angle **vertical** to  $\angle FBG$ .

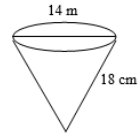


Find the surface area of the figures below. Round to the nearest tenth, if necessary.

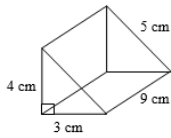
35.



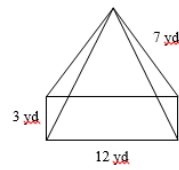
36.



37.



38.



## Solutions

$$\textcircled{1} A = \frac{1}{2}bh$$

$$A = \frac{1}{2}(6)(7)$$

$$A = 21\text{m}^2$$

$$\textcircled{2} A = \frac{1}{2}(b_1 + b_2)h$$

$$A = \frac{1}{2}(6 + 4)(4)$$

$$A = 20\text{cm}^2$$

$$\textcircled{3} A = bh$$

$$A = 7.7(2)$$

$$A = 15.4\text{m}^2$$

$$\textcircled{4} A = lw$$

$$A = 6.9(2.4)$$

$$A = 16.56\text{in}^2$$

$$\textcircled{5} 4(x+4) + 4(3) + 2(2x+5)$$

$$4x + 16 + 12 + 4x + 10$$

$$8x + 38 \text{ units}$$

$$\textcircled{6} 16 \div 4 + 18 \div 2$$

$$4 + 9$$

$$13$$

$$\textcircled{7} 6[5 + (14 - 8) \div 3]$$

$$6[5 + 6 \div 3]$$

$$6[5 + 2]$$

$$6(7)$$

$$42$$

$$\textcircled{8} 10(17 - 4) - 3(8 + 4)$$

$$10(13) - 3(12)$$

$$130 - 36$$

$$94$$

$$\textcircled{9} 4[2(6 \cdot 4) - 8 \cdot 6]$$

$$4[2(24) - 48]$$

$$4[48 - 48]$$

$$4[0]$$

$$0$$

$$\textcircled{10} \quad 7 = \frac{x}{5} - 3$$
$$\begin{array}{r} +3 \qquad +3 \\ \hline \end{array}$$

$$5(10) = \frac{x(5)}{5}$$

$$50 = x$$

$$\textcircled{13} \quad 12x - 9 + 2x - x = -87$$

$$\begin{array}{r} 13x - 9 = -87 \\ +9 \qquad +9 \\ \hline \end{array}$$

$$\frac{13x = -78}{\frac{13}{13} \quad \frac{13}{13}}$$

$$x = -6$$

$$\textcircled{11} \quad 19 = 3r - 7 - 5r$$

$$19 = -2r - 7$$

$$\begin{array}{r} +7 \qquad +7 \\ \hline \end{array}$$

$$\frac{26 = -2r}{-2 \quad -2}$$

$$-13 = r$$

$$\textcircled{14} \quad \frac{12}{20} = \frac{3}{5}, 0.6, 60\%$$

$$\textcircled{15} \quad \frac{16}{36} = \frac{4}{9}, 0.\bar{4}, 44.\bar{4}\%$$

$$\textcircled{16} \quad \frac{35}{77} = \frac{5}{11}, 0.\bar{45}, 45.\bar{45}\%$$

$$\textcircled{12} \quad 5x + 6 - 6x + 2 = 19$$

$$-x + 8 = 19$$

$$\begin{array}{r} -8 \quad -8 \\ \hline \end{array}$$

$$\frac{-x = 11}{-1 \quad -1}$$

$$x = -11$$

$$\textcircled{17} \quad 7(x - 4)$$

$$7x - 28$$

$$\textcircled{18} \quad -2(-3x + 4)$$

$$6x - 8$$

$$\textcircled{19} \quad \frac{2}{3}(6x + 9) + 4x$$

$$4x + 6 + 4x$$

$$8x + 6$$

$$\begin{aligned} (20) \quad & -\frac{5}{24} \div \frac{1}{12} \\ & -\frac{5}{24} \cdot \frac{12}{1} = -\frac{5}{14} \end{aligned}$$

$$\begin{aligned} (21) \quad & \frac{5}{6} \cdot \left(-1\frac{3}{10}\right) \\ & \frac{5}{6} \cdot \left(-\frac{13}{10}\right) = -\frac{13}{12} \end{aligned}$$

$$\begin{aligned} (22) \quad & 1\frac{1}{2} - 2\frac{4}{5} \\ & \frac{3}{2} - \frac{14}{5} \\ & \frac{15}{10} - \frac{28}{10} = -\frac{13}{10} = -1\frac{3}{10} \end{aligned}$$

$$\begin{aligned} (23) \quad & \frac{30}{x} = \frac{75}{100} \text{ or } 30 = .75x \\ & x = 40 \end{aligned}$$

$$\begin{aligned} (24) \quad & \frac{x}{40} = \frac{78}{100} \text{ or } x = .78(40) \\ & x = 31.2 \end{aligned}$$

$$\begin{aligned} (25) \quad & \frac{26.6}{53.2} = \frac{x}{100} \text{ or } 26.6 = 53.2p \\ & p = 50\% \end{aligned}$$

$$\begin{aligned} (26) \quad & \frac{54.6}{x} = \frac{65}{100} \text{ or } 54.6 = .65x \\ & x = 84 \end{aligned}$$

$$\begin{aligned} (27) \quad & \text{Complement} = 90 - 29 \\ & = 61^\circ \end{aligned}$$

$$\begin{aligned} (28) \quad & \text{Supplement} = 180 - 54 \\ & = 126^\circ \end{aligned}$$

$$\begin{aligned} (29) \quad & 17 + 42 = 59 \\ & \text{No, not complementary} \\ & \text{because not } = 90^\circ. \end{aligned}$$

(30) Vertical Angles

(31) Sides - Scalene  
Angles - Obtuse

(32) Sides - Isosceles  
Angles - Acute

- (33) 3 - triangle  
 4 - quadrilateral  
 5 - pentagon  
 6 - hexagon  
 7 - heptagon  
 8 - octagon  
 9 - nonagon  
 10 - decagon

(34)  $\angle ABD = 90 - 24$   
 $\angle ABD = 66$

- b)  $\angle CBG$  or  
 $\angle EBD$  or  
 $\angle CBF$  or  
 $\angle CBA$  or  
 $\angle EBA$

c)  $\angle DBE$

(35)  $SA = \begin{matrix} \text{top} \\ \text{bottom} \end{matrix} + \begin{matrix} \text{right} \\ \text{left} \end{matrix} + \begin{matrix} \text{front} \\ \text{back} \end{matrix}$   
 $= 2(4(10)) + 2(4(8)) + 2(10(8))$   
 $= 2(40) + 2(32) + 2(80)$   
 $= 80 + 64 + 160$   
 $SA = 304 \text{ cm}^2$

(36)  $SA = \pi r^2 + \pi r l$   
 $SA = 3.14(7)^2 + 3.14(7)(18)$   
 $= 153.86 + 395.64$   
 $SA = 549.5 \text{ cm}^2$

(37)  $SA = 2\Delta's + 3\text{ } \square 's$   
 $= 2\left(\frac{1}{2}(3)(4)\right) + 3(9) + 4(9) + 5(9)$   
 $= 12 + 27 + 36 + 45$   
 $SA = 120 \text{ cm}^2$

(38)  $SA = \square + 4\Delta's$   
 $= 3(12) + 2\left(\frac{1}{2}(12)(7)\right) + 2\left(\frac{1}{2}(3)(7)\right)$   
 $= 36 + 84 + 21$   
 $SA = 141 \text{ yd}^2$