

# Algebra in My World (3 - 4)

Name \_\_\_\_\_

Read each problem carefully. Answer as many as you can. Write answers clearly. You may write on this test. Label your answers.

1. Write an equation to solve this problem, and then solve the equation. An oak tree is 42 feet high. The oak tree is 18 feet taller than the fir tree. How tall is the fir tree? Label your solution.

Show your work here:

Equation: \_\_\_\_\_

Solution: \_\_\_\_\_

2. If  $6 + N > 9$ , circle all the numbers that "N" could be:

3   2   4   1   0   8   5

3. If  $n = (a - b)$  and a is 10 and b is 3, what is the value of n?

n = \_\_\_\_\_

4. Put the missing operation symbol ( $+$ ,  $-$ ,  $\times$ ,  $\div$ ) in the circle  $\bigcirc$  to make the equation true.

$$12 \bigcirc 3 = 5 + 4$$

5. Circle the correct answer for the problem.

$$3(4n - 2) =$$

- a.  $7n - 2$
- b.  $7n + 6$
- c.  $12n - 5$
- d.  $12n - 6$

6. Write a rule or function that explains what needs to happen to change the number in column A to the number in column B.

A	B
3	11
4	12
5	13
7	15
9	17

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7. Circle the statement that is true.

- a.  $5(3 - 2) = 5 + 3 - 1$   
 b.  $5(3 - 1) = 5(1 + 1)$   
 c.  $5(3 - 1) = 5 + 3 + 1$

8. Find the missing numbers for the input-output chart. Write the rule or function on the answer line provided.

Input	Output
4	20
0	0
1	(a)
(b)	40
9	45

- a. \_\_\_\_\_  
 b. \_\_\_\_\_

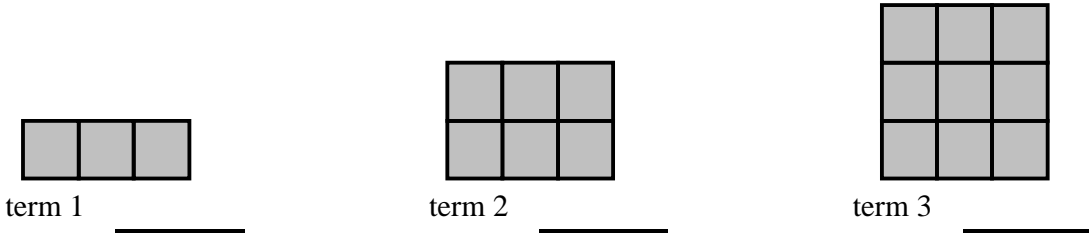
rule or function: \_\_\_\_\_

9. Write a number in each square  and put a symbol ( $<$ ,  $>$ ,  $=$ ) in each circle  to make the statements true.

$$4 \times \square \bigcirc 3 \times 6$$

$$67 + 4 \bigcirc 106 - \square$$

10. Look for a pattern in the following problem. Fill in the number of squares needed to build each term.



a. Draw terms 4 and 5 below and fill in the number of squares each term should have.

term 4: <u>          </u>	term 5: <u>          </u>
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Fill in the t-chart for the 1<sup>st</sup> five terms.

Term	# of squares
1	
2	
3	
4	
5	

b. How many squares would it take to build term 10?           

c. Write a rule for finding the number of squares for each term.

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11. Fill in the missing numbers for the input-output chart. Write the rule or function on the answer line provided.

Input	7	8	10	(b)	(c)
Output	15	(a)	21	13	1

a. \_\_\_\_\_

b. \_\_\_\_\_

c. \_\_\_\_\_

d. rule or function: \_\_\_\_\_



12. Write the following expressions using numbers.

a. Six more than three \_\_\_\_\_

b. Seven less than ten \_\_\_\_\_

c. Two plus nine \_\_\_\_\_

d. One-half of sixteen \_\_\_\_\_

13. Find a value for the  and  so that both equations are true.

$$\square + \text{hexagon} + \text{hexagon} = 12$$

$$\square + \square = 16$$

$$\square = \underline{\hspace{2cm}}$$

$$\text{hexagon} = \underline{\hspace{2cm}}$$

14. What value does each shape represent?

$$\square + \square + \triangle = 18$$

$$\hexagon + \hexagon + \hexagon = 9$$

$$\hexagon + \square + \triangle = 16$$

$$\triangle = \underline{\hspace{2cm}}$$

$$\square = \underline{\hspace{2cm}}$$

$$\hexagon = \underline{\hspace{2cm}}$$

15. In the equation  $a + b = x$ , substitute 86 for  $a$  and 29 for  $b$ . Solve for  $x$ .

$$x = \underline{\hspace{2cm}}$$

16. For the following equation  $2c + 3m = 88$ , let  $c = 11$  and solve for  $m$ .

$$m = \underline{\hspace{2cm}}$$

17. If  $k = 11$ , what does  $7k =$                      

18. Put a symbol ( $<$ ,  $>$ ,  $=$ ) in the circle  $\bigcirc$  to make each statement true.

a.  $27 \bigcirc 72$

b.  $94 - 6 \bigcirc 6 \times 13$

c.  $6317 \bigcirc 6137$

d.  $3 \times 4 \times 2 \bigcirc 12 + 11$

19.. If  $\triangle = 10$ , fill in the chart with all the possible values for  $\square$  and  $\hexagon$  in the following equation.

$$\triangle + \triangle + \triangle = \square + \square + \hexagon$$

$\square$	$\hexagon$