

Name \_\_\_\_\_ 7<sup>th</sup> Grade Teacher: \_\_\_\_\_

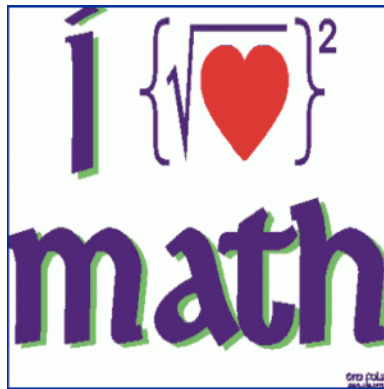
## Summer 2017

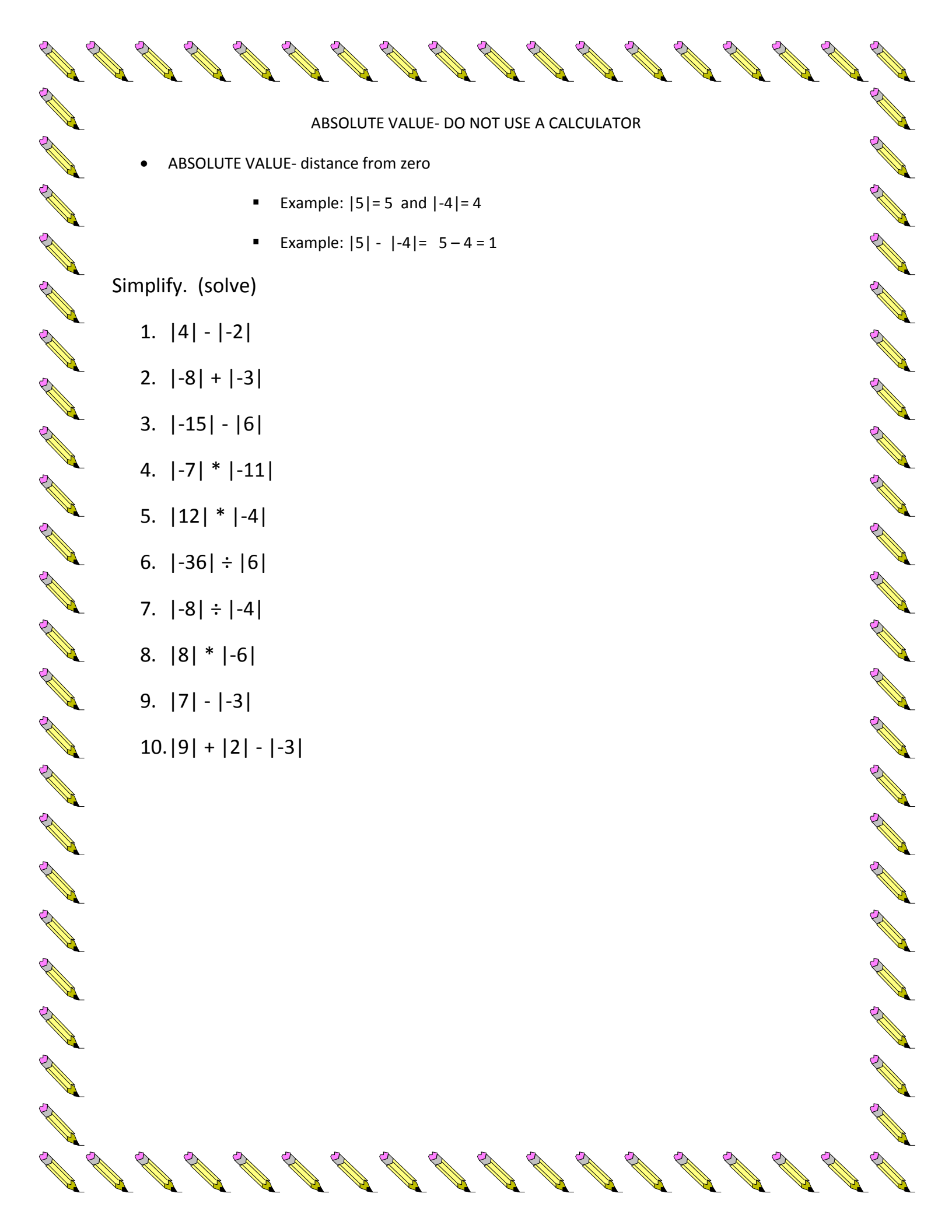
Dear 8<sup>th</sup> grade Math Student,

Enclosed you will find the Summer Math Packet. It consists of skills taught in 7<sup>th</sup> grade. It is **DUE THE FIRST DAY OF SCHOOL** and will be collected and reviewed by your teacher. Please DO NOT use a calculator on the pages stated on the top of the page.

If you have any questions, feel free to contact either Mrs. Westerby at [mwesterby@wtps.org](mailto:mwesterby@wtps.org) or Miss Mazzulla at [mmazzulla@wtps.org](mailto:mmazzulla@wtps.org).

We are looking forward to a great school year.





ABSOLUTE VALUE- DO NOT USE A CALCULATOR

- ABSOLUTE VALUE- distance from zero
  - Example:  $|5| = 5$  and  $|-4| = 4$
  - Example:  $|5| - |-4| = 5 - 4 = 1$

Simplify. (solve)

1.  $|4| - |-2|$

2.  $|-8| + |-3|$

3.  $|-15| - |6|$

4.  $|-7| * |-11|$

5.  $|12| * |-4|$

6.  $|-36| \div |6|$

7.  $|-8| \div |-4|$

8.  $|8| * |-6|$

9.  $|7| - |-3|$

10.  $|9| + |2| - |-3|$



## ADDING INTEGERS- DO NOT USE A CALCULATOR

- ADDING INTEGERS- add integers with the same sign and subtract integers with different signs

- Example:  $-2 + -4 = -6$  and  $5 + (-2) = 3$

Add

1.  $-3 + (-2)$

2.  $-6 + 4$

3.  $2 + (-2)$

4.  $-5 + 3 + 3$

5.  $-2 + (-1) + 6$

6.  $2 + (-7) + (-1)$

7.  $9 + (-4) + 3$

8.  $-4x + 7x$

9.  $-10t + 9t$

10.  $3y + 6y + (-10)y$



SUBTRACTING INTEGERS- DO NOT USE A CALCULATOR

- SUBTRACTING INTEGERS- add its opposite
  - Example:  $5 - (-3) = 8$  and  $-6 - (-3) = -3$

Keep-Change-Change

Simplify each expression

1.  $5 - 11$

2.  $9 - (-2)$

3.  $11 - 3$

4.  $-5x - 5x$

5.  $-7y - (-12y)$

6.  $4z - 15z$

7.  $15xy - (-6xy)$

8.  $36c - (-81c)$

9.  $-53va - 32va$

10.  $-35m - (-35m)$

\*\*\*\*Challenge\*\*\*\*

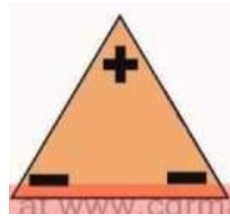
a.  $4x - (-3x) + 5y - 4y$

b.  $25 - 7x + 5$

MULTIPLYING INTEGERS-DO NOT USE A CALCULATOR

\* AND ( ) means multiply), use triangle rule

+	-	-
-	+	-
-	-	+



State whether each statement is true or false.

1. The product of two positive integers is positive. \_\_\_\_\_
2. The product of one negative and two positive integers is negative. \_\_\_\_\_

the product of two integers with different signs is negative and the product of two integers with the same sign is positive.

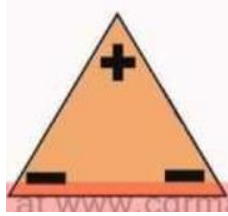
- Example:  $5(-3) = -15$  and  $(-6)(-4) = 24$

Multiply

3.  $-4 * (-15)$
4.  $-8 * 7$
5.  $2 * (-5)$
6.  $3 * (-6)$
7.  $(-3)(-9)(2)$
8.  $(2)(-5)(-5)$
9.  $(8)(-2)(1)$
10.  $(-7)(-8)(-3)(0)$

DIVIDING INTEGERS-DO NOT USE A CALCULATOR

+	-	-
-	+	-
-	-	+



DIVIDING INTEGERS- the quotient of two integers with different signs is negative and the quotient of two integers with the same sign is positive.

- Example:  $-14/2 = -7$  and  $-20/-4 = 5$

Divide

1.  $12 \div (-6)$

2.  $-15 / 3$

3.  $14 / 2$

4.  $-21 \div (-7)$

5.  $30 / (-5)$

6.  $0 \div 6$

7.  $64 / 8$

8.  $-49 / 7$

9.  $-81 / 9$

10.  $-24 / (-8)$

\*\*\*\*\*Challenge\*\*\*\*\*

a.  $-4/0=$

b.  $(-4)(-3) / 6$



THE DISTRIBUTIVE PROPERTY

- Examples:  $3(x + 2) = 3x + 6$
- $4(y - 3) = 4y - 12$

Use the distributive property to write expression as an equivalent expression.

1.  $3(x + 2)$
2.  $4(w - 5)$
3.  $-2(c + 7)$
4.  $(p - 10)8$
5.  $-15(4 + n)$
6.  $-12(x - 12)$
7.  $(x + 3)(-3)$
8.  $-11(t - 6)$
9.  $8(x + 60)$
10.  $-(x + 2)$

\*\*\*\*\*Challenge\*\*\*\*\*

- a.  $-(x - 3) + 6$
- b.  $2(x + 2) + 3x$



## ORDER OF OPERATIONS-DO NOT USE A CALCULATOR

### PEMDAS

ORDER OF OPERATIONS- Evaluate the expressions inside the parenthesis, multiply and/or divide from left to right, and then add and/or subtract from left to right.

▪ Example:  $5(6 + 1) - 3 * 3 = 26$

Evaluate each expression

1.  $6 + 3 * 9$

2.  $14 - 6 + 8$

3.  $10 \div 5 * 3$

4.  $22 / 11 - 6$

5.  $2(6 + 2) - 4 * 3$

6.  $2[(13 - 4) + 2(2)]$

7.  $\frac{(67 + 13)}{(34 - 29)}$

8.  $8 * 7 \div 14 - 1$

9.  $\frac{4(18)}{2(9)}$

10.  $9 + 3 \div 3$

\*\*\*\*\*Challenge\*\*\*\*\*

a.  $-3(4 + 5) \div -9$

b.  $7 - 10 * 2 / 4$





## EVALUATE EXPRESSIONS

EVALUATE EXPRESSIONS- replace the variable(s) with known values and follow order of operations.

- Example: Evaluate when  $x = 2$  and  $y = 3$ ;  $5xy + x = 5(2)(3) + 2 = 32$

Evaluate each expression if  $x = 10$ ,  $y = 5$ ,  $z = 1$

1.  $x + y - z = 10 + 5 - 1 = 14$

2.  $\frac{x}{y}$

3.  $2x + 4z$

4.  $xy + z$

5.  $\frac{6y}{10z}$

6.  $x(2 + z)$

7.  $x - 2y$

8.  $\frac{(x + y)}{z}$

9.  $-2x - 5$

10.  $5(z - x)$



ONE STEP EQUATIONS:

- ONE STEP EQUATIONS- To get the variable by itself, add, subtract, multiply, or divide the same number from each side of the equation. Check your solution.

- Example: Solve:  $x + 5 = 11$ ; subtract 5 on both sides;  $x = 6$

Solve each equation. Remember to use the INVERSE (opposite) operation.

1.  $-3a = 15$

2.  $-t = 5$

3.  $\frac{h}{7} = 0$

4.  $\frac{a}{-2} = -1$

5.  $x + 5 = 2$

6.  $11 + w = 10$

7.  $A - 7 = -5$

8.  $-3 + x = -7$

9.  $Y - (-9) = 12$

10.  $4x = -2$



## TWO STEP EQUATIONS

TWO STEP EQUATIONS- To get the variable by itself, add, subtract, multiply, or divide the same number from each side of the equation. Check your solution. Remember to use the INVERSE (opposite) operation.

Example: Solve:  $2x + 15 = 11$ ; subtract 15 on both sides, then divide both sides 2;  $x = -2$

1.  $9x - 7 = -7$

2.  $\frac{a}{4} + 2 = 6$

3.  $\frac{x}{7} + 4 = 0$

4.  $\frac{x}{20} - 5 = -4$

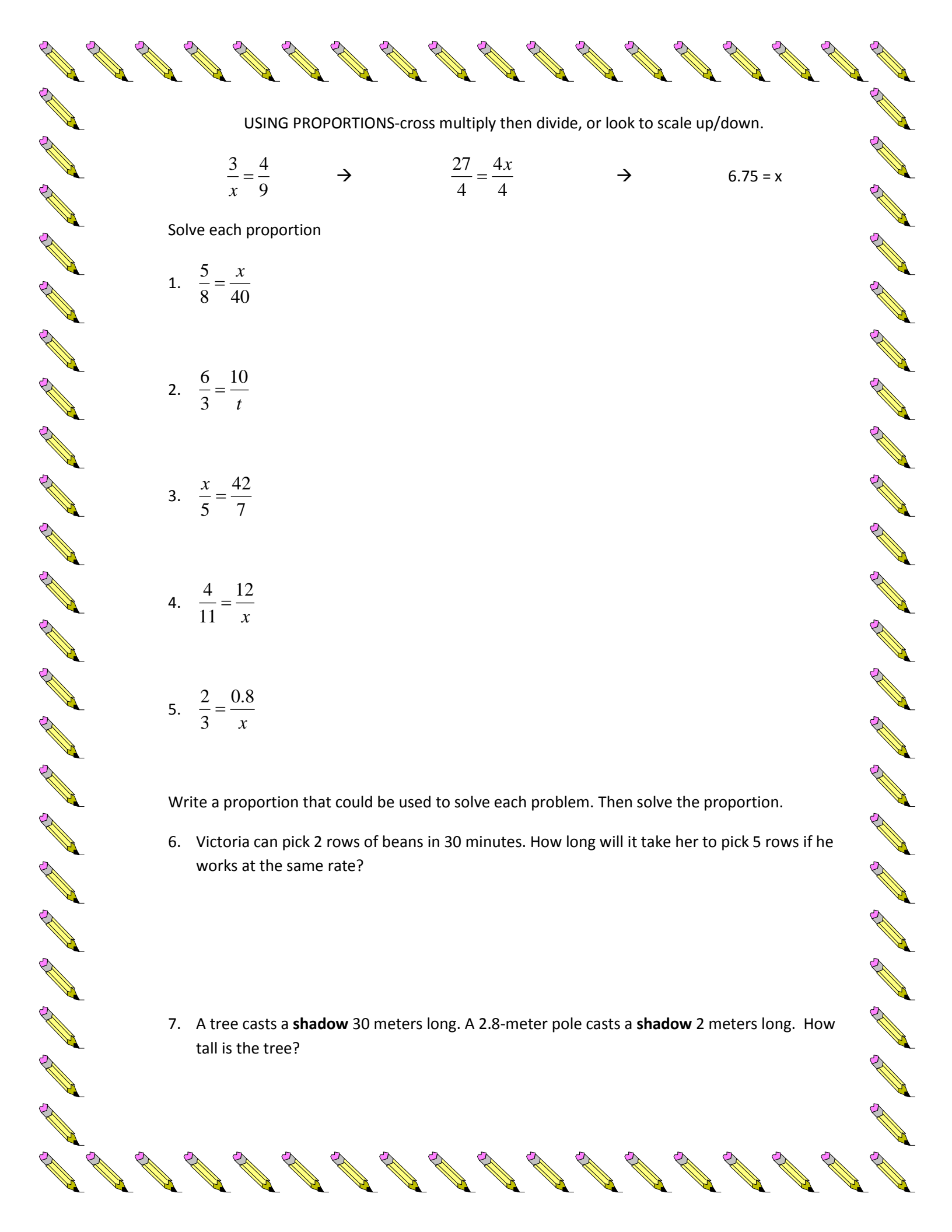
5.  $-9x + 1 = -80$

6.  $144 = -12(x + 5)$

7.  $\frac{x + 5}{-16} = -1$

8.  $-10 = -10 + 7m$

9.  $9 + 9n = 9$



USING PROPORTIONS-cross multiply then divide, or look to scale up/down.

$$\frac{3}{x} = \frac{4}{9} \quad \rightarrow \quad \frac{27}{4} = \frac{4x}{4} \quad \rightarrow \quad 6.75 = x$$

Solve each proportion

1.  $\frac{5}{8} = \frac{x}{40}$

2.  $\frac{6}{3} = \frac{10}{t}$

3.  $\frac{x}{5} = \frac{42}{7}$

4.  $\frac{4}{11} = \frac{12}{x}$

5.  $\frac{2}{3} = \frac{0.8}{x}$

Write a proportion that could be used to solve each problem. Then solve the proportion.

6. Victoria can pick 2 rows of beans in 30 minutes. How long will it take her to pick 5 rows if he works at the same rate?

7. A tree casts a **shadow** 30 meters long. A 2.8-meter pole casts a **shadow** 2 meters long. How tall is the tree?