Name _____

Date _____Pd_____

EQUATIONS WITH SPECIAL CASES

In A-F, fill in the blanks with a number that will make the equation true. The number you pick for the blank must be the same in each blank of that letter's equation. Then, answer the questions that follow.

A $2(\underline{\hspace{1cm}}) = -10$

B $5(\underline{\hspace{1cm}}) = 5(\underline{\hspace{1cm}})$

C $3 + (\underline{\hspace{1cm}}) = 5 + (\underline{\hspace{1cm}})$

D $2 + (\underline{\hspace{1cm}}) = 2 + (\underline{\hspace{1cm}})$

E $(\underline{\hspace{1cm}}) - 7 = (\underline{\hspace{1cm}}) + 7$

F $15 + (\underline{\hspace{1cm}}) = 25$

- Were there any equations that could have more than one solution? If so, which letters?

- Were there any equations that did not have a solution? If so, which letters?

- Which equations had only one value that would make the equation true?

When solving equations, there are three types of possible solutions described below.

_____ SOLUTION	_____ SOLUTION	_____ REAL NUMBERS
In this type of equation, _____ number will work to make the equation true. Ex: $-4x + 12 = 4x + 20$	In this type of equation, there is _____ a number that will work to make the equation true. Ex: $3x - 3 = 3x + 6$	In this type of equation, _____ number will work to make the equation true. Ex: $-2x + 7 = -2x + 7$

After solving each of the example equations in the table above, summarize what happens for each type of solution:

a. One solution:	b. No solution:	c. All real numbers:

In 1-6, solve the equation. Be sure to show all work.

1. $$13 - 5x = -5x + 13$$	2. $$7(2x - 1) = 1 + 14x - 8$$	3. $$13 + 2(x - 6) = 4x - 7$$
4. $$\frac{1}{4}(8x + 4) = 2x - 4$$	5. $$\frac{1}{2}(6x + 8) = 2x + 4 + x$$	6. $$4x + 12 - 8 = 2x + 3 + 2x$$

Apply your knowledge of solving equations to answer 7-9.

7. Anna was solving an equation, and her last line of work read "8 = 8". What does this mean?	8. Tyler was solving an equation, and his last line of work read "-12 = 12". What does this mean?

9. The left side of an equation is given below. Complete the right side of the equation with an expression that is unique from the expression on the left, includes the distributive property and will result in the solution stated above the equation. Solve your equation to prove your work is correct.

NO SOLUTION

$$2(6x - 1) = \underline{\hspace{2cm}}$$

ALL REAL NUMBERS

$$3(10x - 4) = \underline{\hspace{2cm}}$$

Name _____

Date _____Pd_____

EQUATIONS WITH SPECIAL CASES

Solve each of the equations below, showing all work. Then, record the letter of the problem in the boxes below according to the number of solutions.

ONE SOLUTION	NO SOLUTION	ALL REAL NUMBERS

A $-7 + 5x = 5x + 9$

B $9x - 17 = -17 + 9x$

C $-13x + x = 8x - 20x$

D $4x - 1 = 10 + 4x$

E $3x + 9 = 2x + 5$

F $7x = 5x - 25 + 30$

G $4(6x - 4) = 8(3x - 2)$

H $15(2x + 2) = 10(3x + 4)$

I $8x + 7(2 - 3x) = -6(2x + 5)$