Solving Equations and Inequalities

Name_____

Block _____   Date_____

Test on Chapter 8 is Thursday, March 5

Review your notes, quiz, homework problems, and handouts for this chapter.
Be able to do the following:

Equations

*Solve and check 1 and 2-step equations showing proper algebraic steps
*Simplify (use distributive property and combine like terms) each side of the equation before
    starting to do operations to both sides of the equation
*Solve and check equations with variables on both sides.
*Solve equations whose solution is all real numbers or no solution.
*Understand the meaning of "the solution to an equation"
*Be able to write a one or two-step equation to solve a problem
*Be able to translate equations into words and a sentence to an equation
*Define a variable, write an equation and solve word problems

Inequalities

*Be able to use words and symbols to write an inequality
*Be able to write a inequality by translating from words
*Be able to make a number line graph to show the inequality
*Solve and check 1, 2-step, and multi-step inequalities

Practice Problems

1) Is the inequality -5 < -2n + 1 true or false for the value n=4 ?	2) Graph this inequality on the number line. x > -2 ← —————————————→	3) True or False ? The first step in solving the equation $\frac{3}{4}n - 6 = -10$ is to multiply both sides by $\frac{4}{3}$
4) Write the inequality for "a number (n) is at most 6"	5) <u>Write the equation</u> that represents this statement: Five more than the product of negative 2 and a number is equivalent to 10.	6) Write a one-step equation whose solution is -2.
7) What is the BEST first step in solving this equation? -6x - 9x + 4 = 20	8) Graph $3 \le x$ on the number line below. ← —————————————→	9) Write the inequality that is equivalent to this one so that the x is on the left side. $-4 \ge x$

Solve(using correct algebraic steps) and Check these equations and inequalities

10) $x + 4 = -8$

11) $x - \frac{2}{3} = -\frac{7}{9}$

12) $\frac{x}{9} = -10$

13) $-16 = -\frac{x}{4}$

14) $1\frac{2}{5}x = \frac{1}{5}$

15) $0.2x = -16$

Solve(using correct algebraic steps) and Check these equations and inequalities

16)

$19 - 3n = 10$

17)

$$\frac{3}{4}x + \frac{1}{3} = -\frac{1}{3}$$

18)

$$1.5x - 4 = -8.5$$

Solve(using correct algebraic steps) and Check these equations and inequalities

19)	20)	21)
$-10 - x < 44$	$\dfrac{x}{7} - 12 > -10$	$-8 < -5 - \dfrac{x}{2}$

Solve(using correct algebraic steps) and Check these equations and inequalities

22) $-6(x + 5) - 4(x - 5) = -30$

23) $-3(4x - 2) + 15 = -12x + 9$

24) The solution to this equation is
All Real Numbers.
Find the value of k.

$-2(3x + 5) = kx - 10$

25) Is the number 2 one of the solutions
to this inequality? Show how you arrived at
your answer.

$-4x - 1 > 7$

26) The solution to this equation is
No Solution.
Find the value of k.

$-8(3x + 2) - (x - 5) = kx - 12$

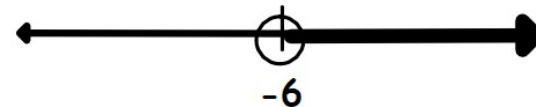27) Find the value of k if the solution to this
equation is 5.

$kx + 3 = \dfrac{-1}{3}$

28) Find the value of k that makes the
solution to this equation -3.

$kx + 4x = -2(x - 5) + 8x - 1$

29) What inequality is shown by this graph?

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Complete the following steps to solve each word problem:

*Define a variable   *Write the word model or formula.

*Write the equation   *Solve it   *Check that your answer makes sense

30) The perimeter of a rectangle is 126 cm. The length of the rectangle is three more than twice the width.Find the dimensions of the rectangle.	31) Sara is considering two different gyms.At Gym A she would pay $5 each day she worked out. At Gym B she would pay $75 to join the gym and then $2 each day she worked out. After how many days would the costs of both gyms be the same?

Complete the following steps to solve these word problem:

*Define a variable   *Write the word model (or formula)

*Write the equation   *Solve it   *Check that your answer makes sense

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32) One side of a triangle is three times another side and the third side is twice the sum of the other two sides. The perimeter of the triangle is 240cm.

33) Seven less than three times a number is the same as five more than half a number. Find the number.

Solve(using correct algebraic steps) and Check these equations and inequalities

34) $7y - 8 = 3(2y - 4) + y$

35) $-5x - (3x - 5) = 2(x + 1) - 4(5x - 2)$