Lesson 1-4 Solving Inequalities *L.O:* I can solve & graph inequalities
I can solve and write compound inequalities.

EQ: What is the difference between solving equations and solving inequalities?

Ex 1. Graphing inequalities on a Number Line

a) $x < 2$

b) $x \geq -3$

c) $-1 \leq x < 2$

d) $x \leq -1 \text{ or } x \geq 2$

Short Summary #1:

Ex. 2 Solving Inequalities

Solve the inequality.

a) $4x + 5 > 25$

b) $5 - 2x \geq 27$

Rule for solving inequalities

When you multiply/divide by a negative number, you must reverse the inequality sign to maintain a true statement

c) $5 - 5x > 4(3 - x)$

d) $-16 \leq 3x - 4 \leq 2$

e) $-5x - 4 < -1.4 \text{ or } -2x + 1 > 11$

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Short Summary #2:

Ex. 3 - Application

a). The school band agrees to play for $200 plus 25% of the ticket sales. Find the ticket sales needed for the band to receive at least $500.

b). A real estate agent earns a salary of $2000 per month plus 4% of the sales. Find the sales if the salesperson is to have a monthly income of at least $5000.

c). The cost of a field trip is $220 plus $7 per student. If the school can spend at most $500, how many students can go on the field trip?

d) The length of a picture frame is 3in. greater than the width. The perimeter is less than 52 in. Describe the dimensions of the frame.

EQ: What is the difference between solving equations and solving inequalities?

e) A baker needs between 40 lb. and 50 lb. of a flour-sugar mixture that contains ten times as much flour as sugar. What are the possible weights of flour the baker can use.

f) By how much should a machinist decrease the length of a rod that is 4.78 cm long if the length must be within 0.02 cm of 4.5 cm?

Short Summary #3:

CFU/CLOSURE:

How do you solve an inequality? Compound inequality?

How do you shade the solution set to an "and" compound inequality?

How do you shade the solution set to an "or" compound inequality?

What is another way to write an "and" inequality without using the word "and"?

How do you read an inequality?

How many solutions do inequalities have and where are they found on a graph?

What is the difference between solving equations and solving inequalities?

Write the following inequalities in words:

$x > -2$

$3 > x$

Solve the following inequalities. Then graph the solution sets:

$-7(3x - 7) + 21x \geq 50$

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$6[5y - (3y - 1)] \geq 4(3y - 7)$

$36 \geq 1 - 5z > -21$

$6b + 3 < 15 \; or \; 4b - 2 > 18$

$\frac{2}{3}(x - 12) \leq x + 8$

Can an inequality have no solutions? Infinitely many solutions?

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Warm-Up Date: _____

Show whether the given number is a solution of the inequality

1. $2x + 9 < 16$; 4 **2.** $-\frac{1}{3}x - 2 \leq -4$; 9

Daily Quiz

Solve and graph the solution set.

1. $-2(x - 3) \geq 4$ 2. $-5(4 - x) < 5x$ 3. $3x + 4 \geq 1 \; and \; -2x + 7 \geq 5$

4. $4y - 2 \geq 14 \; or \; 3y - 4 \leq -13$

5. A copper wire is to have a length of 16cm with a tolerance of ± 0.02 cm. How much must be trimmed from a wire that is 18 cm long for it to meet specifications?

6. Find the lesser of two consecutive integers with a sum greater than 16.

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