Today's Plan:

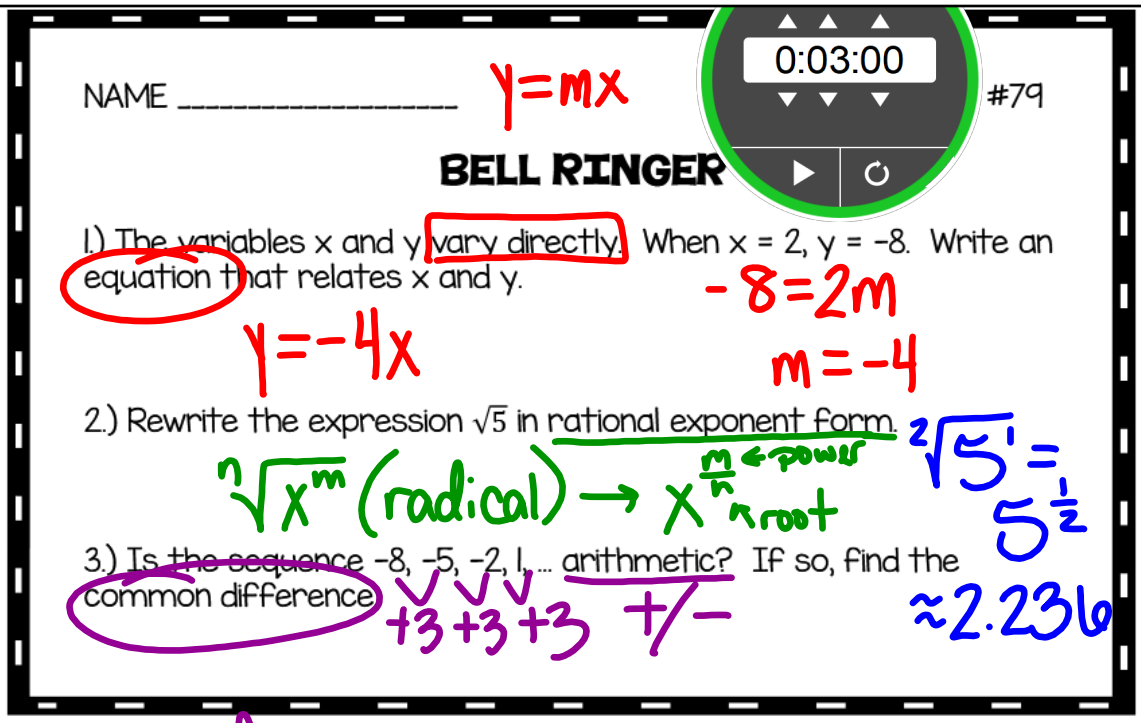
Learning Target (standard): I will solve combined inequalities. I will write their solutions as sets and intervals. I will graph the solutions on a number line.

Students will: Complete practice problems over previous concepts at the boards, put up homework problems on the board and make necessary corrections to their own work, take notes over new material and complete practice problems over new concepts.

Teacher will: Provide practice problems over previous concepts, check homework problems for accuracy and provide students feedback, describe and provide examples of new concepts and assign students assessment problems over new concepts.

Assessment: Board work, homework check and homework assignment

Differentiation: Students will work at the board, go over and correct homework at their seats, actively engage in lecture over new concepts, practice new concepts with the aid of other students and the teacher and complete homework assignment.



d=3

Solve. Write the solution as a set and interval.

$$7) -4p - 8 > 4(8p - 2)$$

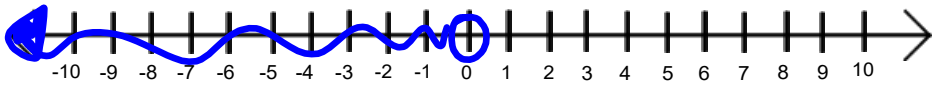
$-4p - 8 > 32p - 8$

$-36p - 8 > -8$

$-36p > 0$

$p < 0$

$\{p \mid p < 0\}$



$(-\infty, 0)$

Solve. Write the solution as a set and interval.

$$14) -2 \geq -4(x - 3) + 5(2 - 4x)$$

$-2 \geq -4x + 12 + 10 - 20x$

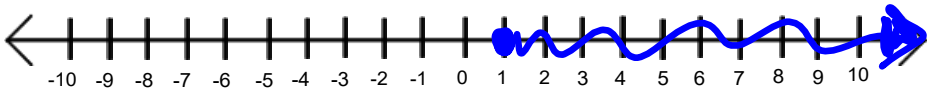
$-2 \geq -24x + 22$

$24x - 2 \geq 22$

$24x \geq 24$

$x \geq 1$

$\{x \mid x \geq 1\}$



$[1, \infty)$

Solve. Write the solution as a set and interval.

$$2x+4\geq 8$$

① $2x \geq 4$

$x \geq 2$

② $\{x \mid x \geq 2\}$

③

④ $[2, \infty)$

Solve. Write the solution as a set and interval.

$$\frac{1}{2}x \geq 2(x-3)$$

① $\frac{1}{2}x \geq 2x-6$

$-\frac{3}{2}x \geq -6$

$x \leq 4$

② $\{x \mid x \leq 4\}$

③

④ $(-\infty, 4]$

Solve. Write the solution as a set and interval.

$$5(2b+1)-3(b+1)<7b+5$$

① $10b+5-3b-3<7b+5$

$7b+2<7b+5$

$2<5$

② R

③

④ $(-\infty,\infty)$

Solve. Write the solution as a set and interval.

① $-3x-6<9$

$-3x<15$

$x>-5$

② $\{x \mid x>-5\}$

③

④ $(-5,\infty)$

Solve. Write the solution as a set and interval.

$$5(x-1) > 3(x+4) - 5$$

① $5x-5>3x+12-5$

$5x-5>3x+7$

$2x-5>7$

$2x>12$

$x>6$

② $\{x \mid x>6\}$

③

④ $(6, \infty)$

Combined Inequalities:

- Compound Inequalities
  - the variable being solved for is in between two different inequality symbols

$$-2 < x+1 < 3$$

  - solve for the variable by isolating it in the middle
  - perform the same operation on each side of the inequality

Solve. Write the solution as a set and interval.

$-2 < x + 1 < 3$

$-1 \quad -1 \quad -1$

$-3 < x < 2$

$\{x \mid -3 < x < 2\}$

$(-3, 2)$

Combined Inequalities:

- The Disjunction
  - the union of two or more sets of numbers using the word or to mean that the numbers are together in the sets
  - solve each piece and determine the numbers in the union by graphing and seeing WHAT is shaded

Solve. Write the solution as a set and interval.

$-y-2<-5$ or $-y-2>5$

$-y<-3$ $-y>7$

$y>3$ $y<-7$

$\{y \mid y<-7, y>3\}$

$(-\infty,-7) \cup (3,\infty)$

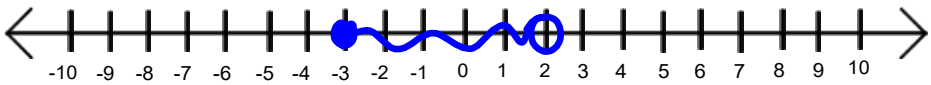
Solve. Write the solution as a set and interval.

$-2 \le 2a+4<8$

$-6 \le 2a<4$

$-3 \le a<2$

$\{a \mid -3 \le a<2\}$



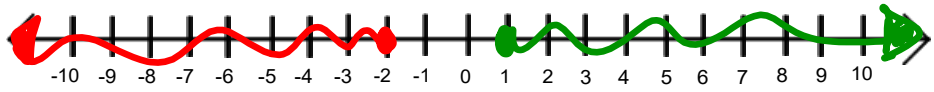
$[-3,2)$

Solve. Write the solution as a set interval.

$2x+1\le -3$ or $2x+1\ge 3$

$2x\le -4$ $\quad$ $2x\ge 2$

$x\le -2$ $\quad$ $x\ge 1$



$\{x \mid x\le -2, x\ge 1\}$

$(-\infty,-2]\cup[1,\infty)$

Assignment:

Combined Inequalities 1

#1-12