CP - Algebra 1
Chapter 6 Student Targets

Name: Key
Teacher:_____Pd:_____Date:_____

Detailed Targets:

6 I can use previous skills learned as they apply to Chapter 6 topics.

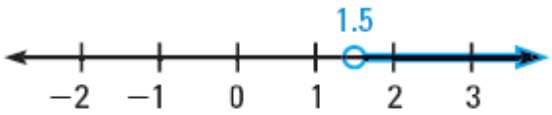
6.1A I can write an inequality.
Ex 1a: The lowest elevation recorded in the United States is -282 feet at Death Valley, California. Use this fact to write an inequality for all of the possible elevations in the United States.

X = elevation

$X \geq -282$

6.1B I can graph an inequality.
Ex 1b: Graph the inequality you wrote in Ex 1a.

6.1C I can write an inequality from a graph.
Ex 1c: Write the equation from the following graph.



$X > 1.5$

6.1D I can solve an inequality using addition and subtraction.
Ex 1d: Solve $x - 3.8 \geq 1$

+3.8 +3.8

$X \geq 4.8$

6.1E I can use the concepts as presented in word problems.
Ex 1c: You are shopping for bicycles. The type you want costs at least $185. You have saved $97. Find the possible amounts you need to save to buy the bicycle you want.

$X + 97 \geq 185$
$-97 \quad -97$

$X \geq 88$

You need to save at least $88 more.

6.2A I can solve an inequality using multiplication.

Ex 2a: Solve $\frac{x}{7} \geq -4$ (7)

$x \geq -28$

6.2B I can solve an inequality using division.

Ex 2b: Solve $\frac{3x}{3} < \frac{7.5}{3}$

$x < 2.5$

$x < \frac{5}{2}$

6.2C I can reverse the inequality sign when dividing or multiplying each side by a negative number.

Ex 2c: Solve $\frac{x}{-3} \geq -2$ (-3)

$x \leq 6$

6.2D I can use the concepts as presented in word problems.

Ex 2d: A restaurant owner wants to place bouquets of flowers on 35 tables for opening night. The owner wants to spend no more than $400 total for all the bouquets. Write an inequality which describes the possibilities for the individual cost of a bouquet.

b = # bouquets

$\frac{35b}{35} < \frac{400}{35}$

$b < \$\frac{80}{7}$

6.3A I can solve a multi-step inequality.

Ex 3a: Solve $-7x+2<-5$.

$-2 \quad -2$

$-7x < -7$

$\frac{-7x}{-7} < \frac{-7}{-7}$

$x > 1$

6.3B I can use the distributive property while solving multi-step inequalities.

Ex 3b: Solve $\frac{1}{3}(3x+6) \geq -1$.

$3 \cdot \frac{1}{3}(3x+6) \geq -1 \cdot 3$

$3x+6 \geq -3$

$-6 \quad -6$

$\frac{3x}{3} \geq \frac{-9}{3}$

$x \geq -3$

6.3C I can solve a multi-step inequality with variables on both sides of the inequality sign.

Ex 3c: $9x+6 \leq 6x+21$

$-6x \quad -6x$

$3x+6 \leq 21$

$-6 \quad -6$

$\frac{3x}{3} \leq \frac{15}{3}$

$x \leq 15$

6.3D I can determine the number of solutions to an inequality.

Ex 3d: Determine the number of solutions to $-2x+9<-2(x-3)$.

$-2x+9 < -2x+6$

$+2x \quad +2x$

$9 < 6$

False

None

6.3E I can use the concepts as presented in word problems.

Ex 3e: You can work at most 24 hours in a week at your part time job. So far this week, you have worked 7 hours. If the remaining shifts for the week are each 4 hours long, how many possible full shifts can you work?

h = # hours worked

$7+4h \leq 24$

$-7 \quad -7$

$\frac{4h}{4} \leq \frac{17}{4}$

$h \leq \frac{17}{4}$

you can only work 4 more full shifts

6.4A I can write compound inequalities.

Ex 4a: Write an inequality which represents the following set of numbers

- *All real numbers that are greater than or equal to -5 and less than 4.*

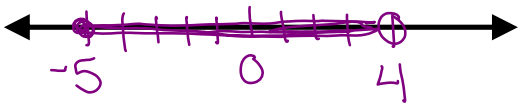
$-5 \leq x < 4$

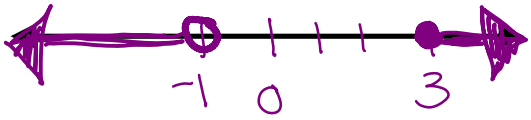
- *All real numbers that are less than -1 or greater than or equal to 3.*

$-1 > x \geq 3$

6.4B I can graph compound inequalities.

Ex 4b: Graph the two compound inequalities which you wrote in 4a..





6.4C I can solve a compound inequality with the word *"and"*.

Ex 4c: Solve $-1 < x+1 \leq 7$.

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

$-2 < x \leq 6$

6.4D

Ex 4d: Solve $3x-2 \leq -11$ *OR* $2x+8 > 16$.

$+2 \quad +2 \qquad -8 \quad -8$

$\frac{3x}{3} \leq \frac{-9}{3} \qquad \frac{2x}{2} > \frac{8}{2}$

$x \leq -3 \quad \text{OR} \quad x > 4$

6.4E I can use the concepts as presented in word problems.

Ex 4e: At an auction, the lowest bid for an autographed baseball card is $20. The highest bid is $54. Write and graph a compound inequality which describes all possible bids.

x = bid

$x \geq 20 \qquad x \leq 54$

$20 \leq x \leq 54$

6.5A I can solve an absolute value equation.

Ex 5a: Solve $|x+4|=3$.

$x+4=3$ or $x+4=-3$

$-4\ -4$ $-4\ -4$

$x=-1$ or $x=-7$

6.5B I can rewrite and solve an absolute value equation in the form $|ax+b|=c$.

Ex 5b: Solve $3|4x+2|-7=11$.

$+7\ +7$

$\frac{3|4x+2|}{3}=\frac{18}{3}$

$|4x+2|=6$

$4x+2=6$ $\quad$ $4x+2=-6$

$-2\ -2$ $\quad$ $-2\ -2$

$\frac{4x}{4}=\frac{4}{4}$ $\quad$ $\frac{4x}{4}=\frac{-8}{4}$

$x=1$ or $x=-2$

6.5C I can determine when there are no solutions to an absolute value equation.

Ex 5c: Solve $3|2x-8|+3=2$.

$-3\ -3$

$\frac{3|2x-8|}{3}=\frac{-1}{3}$

$|2x-8|=\frac{-1}{3}$

No solution

abs. value cannot be negative

6.5D I can use absolute deviation to solve in word problems.

Ex 5d: A volleyball league is preparing a 2 minute radio ad to announce tryouts. The ad has an absolute deviation of .05 minute. Find the minimum and maximum time that the ad can run.

$.05=|t-2|$

$.05=t-2$ or $-.05=t-2$

$+2\ +2$ $\quad$ $+2\ +2$

$2.05=t$ $\quad$ $1.95=t$

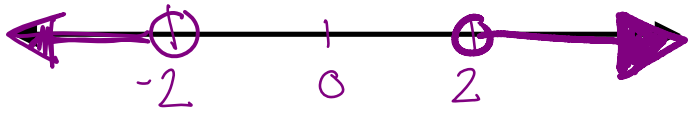
$\Rightarrow$ max = 2.05 min, min = 1.95 min

6.6A I can solve absolute value inequalities.

Ex 6a: Solve and graph the following absolute value inequalities.

$|x| > 2$

$x > 2$ or $x < -2$



$|x| < 1.5$

$x < 1.5$ and $x > -1.5$

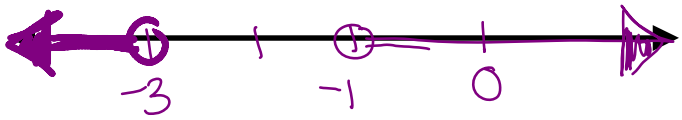
$-1.5 < x < 1.5$

$|x + 2| > 1$

$x + 2 > 1$ or $x + 2 < -1$

$-2 \quad -2 \qquad -2 \quad -2$

$x > -1$ or $x < -3$



$|2x + 3| - 4 \leq 5$

$+4 \quad +4$

$|2x + 3| \leq 9$

$2x + 3 \leq 9$ and $2x + 3 \geq -9$

$-3 \quad -3 \qquad -3 \quad -3$

$\frac{2x}{2} \leq \frac{6}{2} \qquad \frac{2x}{2} \geq \frac{-12}{2}$

$x \leq -3$ and $x \geq -6$

$-6 \leq x \leq -3$

6.6B I can use the concepts as presented in word problems.

Ex 6b: You are on the planning committee for a school dance. Ticket sales for the last ten dances are 133, 178, 205, 220, 186, 142, 138, 204, 216, and 198.

- *Find the mean number of tickets sold over the last ten dances.*
- *The dance committee estimates they will sell the mean number of tickets with an absolute deviation of at most 40 tickets. How many of the ticket sales to the previous ten dances were within this range?*

$\text{mean} = \frac{133+178+205+220+186+142+138+204+216+198}{10}$

$= \frac{1825}{10}$

Mean $= 182.5$

≈ 182 tickets

$40 > |t - 182|$

$40 > t - 182$ or $-40 < t - 182$

$+182 \quad +182 \qquad +182 \quad +182$

$222 > t \qquad 142 < t$

t fall in this range $142 < t < 222$

6.7A I can determine if an ordered pair is a solution to an inequality in two variables.

Ex 7a: Determine if the ordered pair (2 , 1) is a solution to the inequality $x + 2y < 4$.

x y

$2+2(1)<4$

$2+2<4$

$4<4$

not a solution

6.7B I can graph a linear inequality in two variables.

Ex 7b: Graph $-3x + 2y > -8$.

$+3x \quad +3x$

$\frac{2y}{2} > \frac{3x}{2} - \frac{8}{2}$

$y > \frac{3}{2}x - 4$

y int = (0, -4)

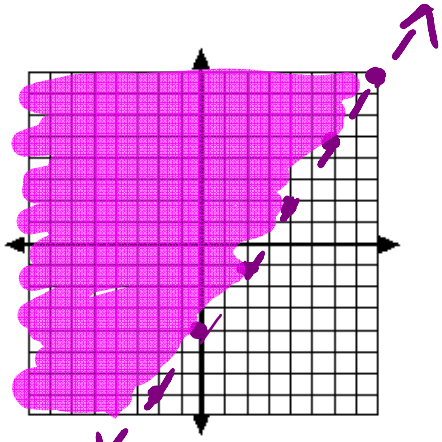
$m = \frac{3}{2}$

test (0,0)

$-3(0)+2(0)>-8$

$0>-8$

True



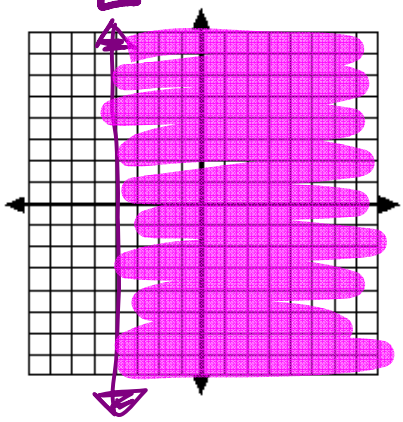
6.7C I can graph a linear inequality in one variable.

Ex 7c: Graph $x \geq -4$.

test (0,0)

$0 \geq -4$

true



6.7D I can use the concepts as presented in word problems.

Ex 7d: A party shop makes gift bags for birthday parties. They charge \$4 per glow stick placed in the bag and \$10 per T-shirt. Let x represent the number of glow sticks and y represent the number of T-shirts. The shop wants to make <u>at least</u> \$500 for the bags.

- *Write an inequality that describes the goal in terms of x and y.*
- *Graph the inequality*
- *Give three possible combinations of glow sticks and T-shirts which obtain the goal.*

$4x + 10y \geq 500$

$\frac{10y}{10} \geq \frac{-4x}{10} + \frac{500}{10}$

$y \geq -\frac{2}{5}x + 50$

test (0,0)

$0 \geq -\frac{2}{5}(0) + 50$

$0 \geq 50$

False