Cumulative 3-4 Review **Name** KEY

1) Solve each equation.

a) $7-\frac{w}{2}=9$

$-7 \quad -7$

$(-2)-\frac{w}{2}=2(-2)$

$w=-4$

b) $2x-4=2(x-2)$

$2x-4=2x-4$

Infinitely Many Solutions

"IDENTITY"

c) $3x+7=5x-13$

$-3x \quad -3x$

$7=2x-13$

$+13 \quad +13$

$\frac{20}{2}=\frac{2x}{2}$

$10=x$

d) $\frac{1}{2}=\frac{x-3}{x+1}$

$1(x+1)=2(x-3)$

$x+1=2x-6$

$-x \quad -x$

$1=x-6$

$+6 \quad +6$

$7=x$

e) $7.4+(-5.1x)+3.2x=20.8$

$7.4+-1.9x=20.8$

$-7.4 \quad -7.4$

$\frac{-1.9x}{-1.9}=\frac{13.4}{-1.9}$

$x=-7.05$

f) $|4x-2|=12$

$4x-2=12 \quad$ or $\quad 4x-2=-12$

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

$\frac{4x}{4}=\frac{14}{4} \quad \frac{4x}{4}=\frac{-10}{4}$

$x=\frac{7}{2} \quad x=\frac{-5}{2}$

Reduce

2) Solve each inequality and graph.

a) $2(x-4) \geq 6$

$2x - 8 \geq 6$

$+8 \quad +8$

$\frac{2x}{2} \geq \frac{14}{2}$

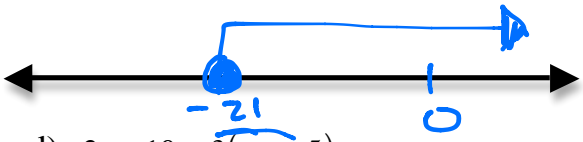
$x \geq 7$

b) $-\frac{m}{3} + 2 \leq 9$

$-2 \quad -2$

$(-3)\left(-\frac{m}{3}\right) \leq 7(-3)$

$m \geq -21$



c) $2x + 10 \geq 7x + 7$

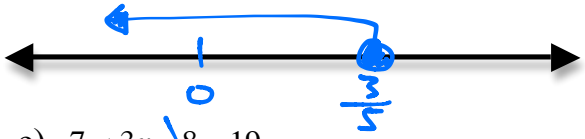
$-2x \quad -2x$

$10 \geq 5x + 7$

$-7 \quad -7$

$\frac{3}{5} \geq \frac{5x}{5}$

$\frac{3}{5} \geq x$ or $x \leq \frac{3}{5}$



d) $2x - 10 > 3(-x + 5)$

$2x - 10 > -3x + 15$

$+3x \quad +3x$

$5x - 10 > 15$

$+10 \quad +10$

$\frac{5x}{5} > \frac{25}{5}$

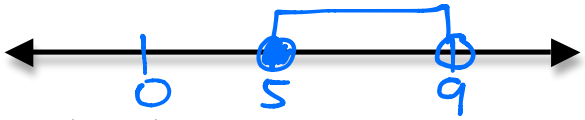
$x > 5$

e) $7 \leq 3x - 8 < 19$

$+8 \quad +8 \quad +8$

$\frac{15}{3} \leq \frac{3x}{3} < \frac{27}{3}$

$5 \leq x < 9$

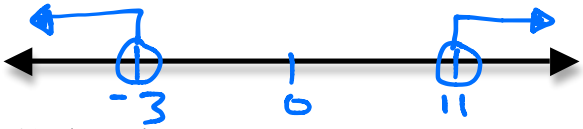


f) $-8x > 24$ *or* $2x - 5 > 17$

$\frac{-8x}{-8} < \frac{24}{-8}$ $\quad +5 \quad +5$

$x < -3$ $\quad \frac{2x}{2} > \frac{22}{2}$

$x > 11$



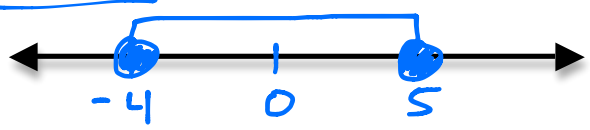
g) $|2x - 1| \leq 9$

$2x - 1 \leq 9$ $\quad$ $2x - 1 \geq -9$

$+1 \quad +1$ $\quad +1 \quad +1$

$\frac{2x}{2} \leq \frac{10}{2}$ $\quad \frac{2x}{2} \geq \frac{-8}{2}$

$x \leq 5$ $\quad x \geq -4$

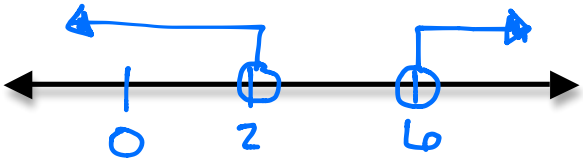


h) $|x - 4| > 2$

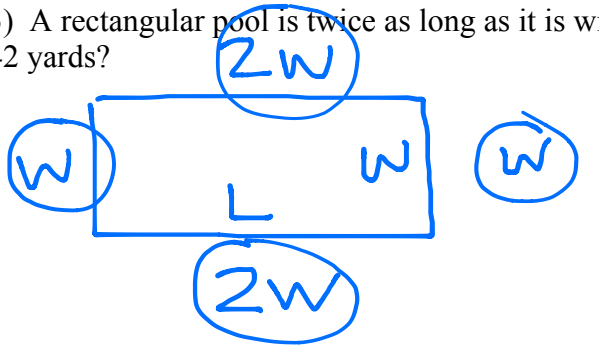
$x - 4 > 2$ $\quad$ $x - 4 < -2$

$+4 \quad +4$ $\quad +4 \quad +4$

$x > 6$ $\quad x < 2$



3) A rectangular pool is twice as long as it is wide. What are the dimensions of the pool if the perimeter is 42 yards?



$P = 42$ yds.

$L = 2W$

$W + 2W + W + 2W = 42$

$\frac{6W}{6} = \frac{42}{6}$

$W = 7$ yds.

$L = 14$ yds.

4) A shopper's discount club charges a monthly fee of $15 and sells gasoline for $2.05 per gallon. The gas station across the street sells gasoline for $2.35 per gallon and charges no fee. How many gallons of gasoline would you have to buy in one month to spend the same amount at either store?

$15 + 2.05x = 2.35x$

$-2.05x \quad -2.05x$

$\frac{15}{.30} = \frac{.30x}{.30}$

$50_{gal.} = x$

If you buy 50 gallons of gas in one month, then the cost would be the same.

5) A DVD club charges a monthly membership fee of $4.95 and $11.95 for each DVD purchased. If a Aaron's bill for the month was $64.70, how many DVDs did Aaron purchase?

$4.95 + 11.95x = 64.70$

$-4.95 \quad -4.95$

$\frac{11.95x}{11.95} = \frac{59.75}{11.95}$

$x = 5$

Aaron bought 5 DVD's

6) If it costs Mike $11.79 in gasoline to drive 90 miles, how much will it cost him to drive 150 miles?

$\frac{\$11.79}{90 \text{ miles}} = \frac{x}{150 \text{ miles}}$

$\frac{90x}{90} = \frac{1768.5}{90}$

$x = \$19.65$

$19.65 to drive 150 miles.

7) The sophomore class is putting on a variety show to raise money. It costs $700 to rent the banquet hall they are going to use. If they charge $15 for each ticket, how many tickets do they need to sell in order to raise at least $1000?

$15T - 700 > 1000$

$+700 \quad +700$

$\frac{15T}{15} > \frac{1700}{15}$

$T > 113.33$

They must sell at least 114 tickets.

$T \geq 114$ tickets

or $T > 113$ tickets

8) Write an inequality for each situation.

a) A car dealership sells at least 35 cars each week.

$x \geq 35$

b) No more than 425 tickets to a musical will be sold.

$x \leq 425$

9) Write a compound inequality for each situation.

a) A car salesman has been told to sell a particular car for more than $14,500 and up to the sticker price of $15,755.

$14500 < x \leq 15755$

b) The width of a parking space needs to be at least 8 feet and no more than 11 feet.

$8 \leq x \leq 11$