W-A2 Algebra 2 Week 4 9/27

$h = ?$

$$V = \frac{\pi}{3} r^2 h$$

$$V = \frac{\pi r^2 h}{3}$$

Multiply by reciprocal (inverse)

$$\frac{3}{\pi r^2}\left(V\right) = \boxed{\frac{\pi r^2}{3}} h \left(\frac{3}{\pi r^2}\right)$$

$$h = \boxed{\frac{3}{\pi r^2} V = \frac{3V}{\pi r^2}}$$

If....

$$\frac{V}{\frac{2}{3}} = \frac{\frac{2}{3}h}{\frac{2}{3}}$$

$$\frac{2}{3}h \div \frac{2}{3}$$ flip

$$\frac{2}{3}h \boxed{* \frac{3}{2}}$$

1.) $S = L(1-r)$

$$S = L - rL$$

$$+rL \qquad +rL$$

$$S + rL = L$$

$$-S \qquad -S$$

$$\frac{rL}{L} = \frac{L-S}{L}$$

$$\boxed{r = \frac{L-S}{L}}$$

$r =$

$$\frac{S}{L} = \frac{L(1-r)}{L}$$

$$\frac{S}{L} = 1 - r$$

$$-1 \quad -1$$

$$\frac{S}{L} - 1 = -r$$

$$r = 1 - \frac{S}{L}$$

or $r = \frac{L-S}{L} = \frac{L}{L} - \frac{S}{L}$

$$\boxed{r = 1 - \frac{S}{L}}$$

2.) $S = LW + WH + LH$ $\quad W = ?$

$-LH \qquad\qquad -LH$

$S - LH = LW + WH$

$$\frac{S - LH}{L+H} = \frac{W(L+H)}{L+H}$$

$$\boxed{W = \frac{S - LH}{L+H}}$$

3.) $\frac{x+3}{t} = \frac{t^2}{4}$ $\quad x = ?$

$t \cdot t^2 = t^{1+2}$

t^3

$4(x+3) = t^3$

$4x + 12 = t^3$

$-12 \qquad -12$

$\frac{4x}{4} = \boxed{\frac{t^3 - 12}{4}}$

$x = \frac{t^3 - 12}{4}$

$\frac{4(x+3)}{4} = \frac{t^3}{4}$

$x + 3 = \frac{t^3}{4} - 3$

-3

$$\boxed{x = \frac{t^3}{4} - 3}$$

4.) $a(x+c) = b(x-c)$ $\quad x = ?$

$ax + ac = bx - bc$

$-ac \qquad -ac$

$ax = bx - bc - ac$

$-bx \qquad -bx$

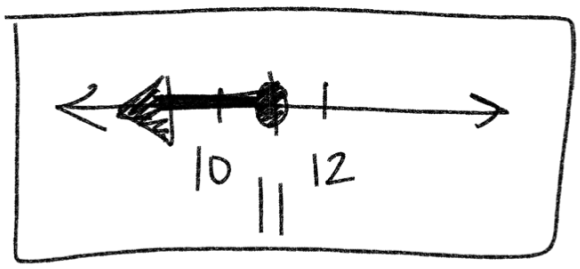
$ax - bx = -ac - bc$

$\frac{x(a-b)}{a-b} = \frac{-ac-bc}{a-b}$

$x = \frac{-ac-bc}{a-b} = c\left(\frac{-a-b}{a-b}\right)$

Solve Inequalities

$$2t + 28 \le 50$$
$$\quad -28 \quad -28$$



$$\frac{2t}{2} \le \frac{22}{2}$$

$$t \le 11$$

$$10 \le 11 \qquad \cancel{12 \le 11}$$

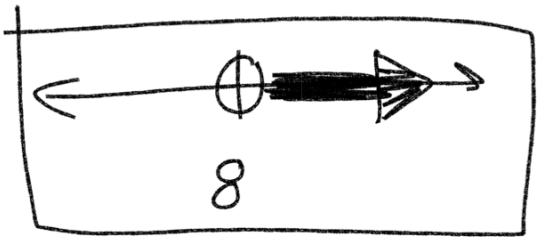
$> <$

$\circ$

$\ge \le$

$\bullet$

$$2(m+3) + 1 > 23$$
$$\quad -1 \quad -1$$



$$\frac{2(m+3)}{2} > \frac{22}{2}$$

$$m + 3 > 11$$
$$\quad -3 \quad -3$$

$$m > 8$$

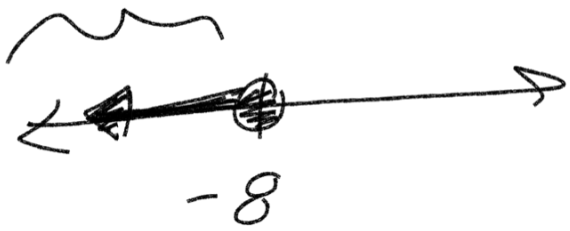
$$\frac{5(1-2m)}{5} \geq \frac{85}{5}$$

$$1-2m \geq 17$$
$$-1 \qquad -1$$

$$\frac{-2m}{-2} \geq \frac{16}{-2}$$

$$\cancel{m \geq -8}$$

$$\boxed{m \leq -8}$$



whenever you mult or divide by a negative, flip inequality

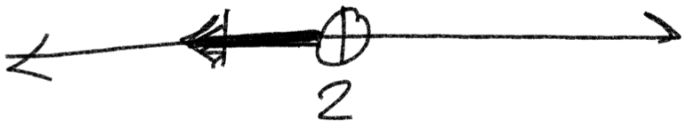
$$-5 - 8(8+7n) > -181$$
$$+5 \qquad\qquad +5$$

$$-8(8+7n) > -176$$

$$-64 - 56n > -176$$
$$+64 \qquad\qquad +64$$

$$\frac{-56n}{-56} > \frac{-112}{-56}$$

$$\boxed{n < 2}$$

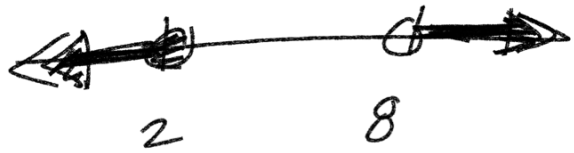


Compound Inequality

divergent

$\frac{16x}{16} \le \frac{32}{16}$ or $\frac{-5x}{-5} < \frac{-40}{-5}$

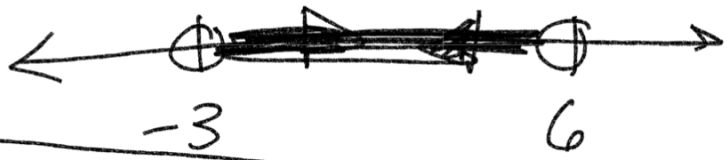
$x \le 2$ $\qquad$ $x > 8$



$\frac{9x}{9} < \frac{54}{9}$ and $\frac{-4x}{-4} < \frac{12}{-4}$

convergent

$x < 6$ $\qquad$ $x > -3$



$14 > 3x - 1 \ge -10$

$+1 \qquad +1 \qquad +1$

$\frac{15}{3} > \frac{3x}{3} \ge \frac{-9}{3}$

$5 > x \ge -3$

$5 > x \qquad x \ge -3$

$5 > x \ge -3$