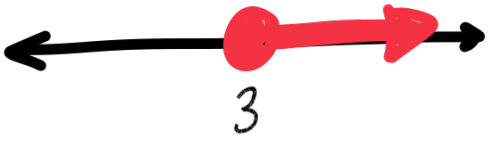
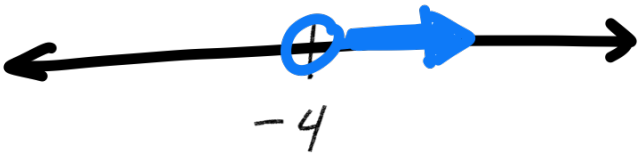
S-A1 Algebra 1 Sessim 10 7/17

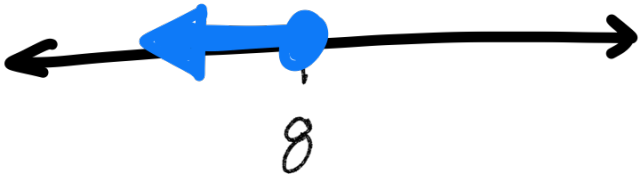
1.) $x \geq 3$



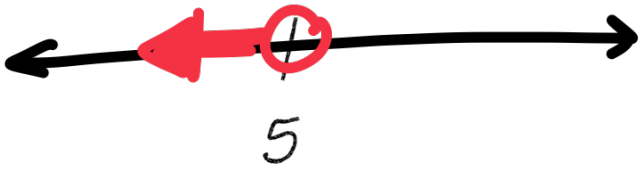
2.) $-4 < x$



3.) $8 \geq x$



4.) $x < 5$



$x + 4 > 9$

$-4 \quad -4$

$x > 5$

$x + 4 = 9$

$-4 \quad -4$

$x = 5$

$\frac{-9x}{-9} \geq \frac{-27}{-9}$ ← flip

$x \leq 3$

You must flip the inequality when you multiply or divide by a negative.

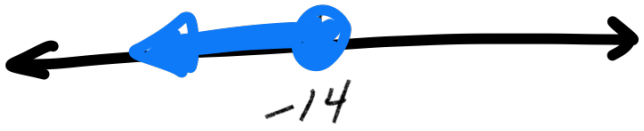
"negative" → "opposite"

1.) $\frac{5x}{5} < \frac{35}{5}$ positive, No flip

$x < 7$

2.) $\frac{x}{-2} \geq (7)(-2)$ flip

$x \leq -14$



3.) $18 \leq x - 3$ subtraction

$+3 \quad +3$

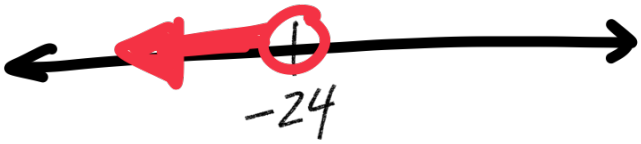
$21 \leq x$

$x \geq 21$

BIGGER

4.) $\frac{4}{1}\left(\frac{x}{4}\right) < (-6)(4)$ positive

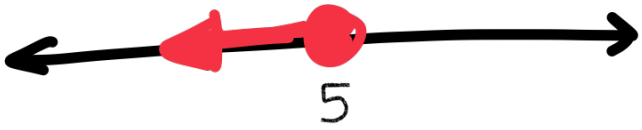
$x < -24$



1.) $x - 8 \leq -3$

$+8 \quad +8$

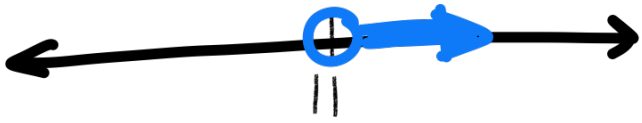
$x \leq 5$



2.) $15 < x + 4$

$-4 \quad -4$

$11 < x$

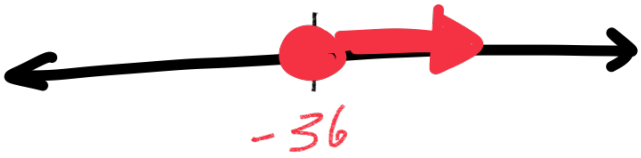


3.) $\frac{-6x}{-6} > \frac{42}{-6}$ * divided by a negative! flip..

$x < -7$

4.) $9\left(-4\right) \leq \left(\frac{x}{9}\right)9$

$-36 \leq x$



$-21 = 4x - 2 + 5$

$-21 = 4x + 3$

$-3 \quad -3$

$\frac{-24}{4} = \frac{4x}{4}$

$-6 = x$

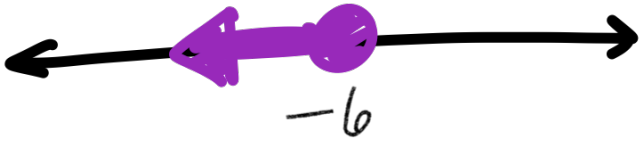
$-21 \geq 4x - 2 + 5$

$-21 \geq 4x + 3$

$-3 \quad -3$

$\frac{-24}{4} \geq \frac{4x}{4}$

$-6 \geq x$



$7x + 5 - 3x < -5$ Solve and graph.

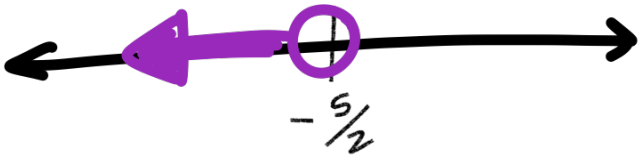
$4x + 5 < -5$

$-5 \quad -5$

$\frac{4x}{4} < \frac{-10}{4}$

$x < \frac{-10 \div 2}{4 \div 2}$

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



$-4 - 3x \geq -2x + 8$

$+2x \quad +2x$

$-4 - x \geq 8$

$+4 \quad +4$

$-x = -1x$

$\frac{-x}{-1} \geq \frac{12}{-1}$ flip!! negative

$x \leq -12$

$-4 - 3x = -2x + 8$

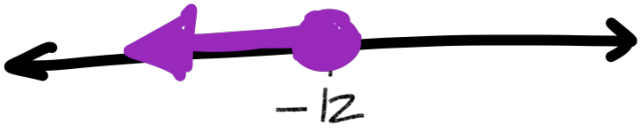
$+2x \quad +2x$

$-4 - x = 8$

$+4 \quad +4$

$\frac{-x}{-1} = \frac{12}{-1}$

$x = -12$



$$8 - 5x < 12 + 7x$$
$$-8 \qquad -8$$

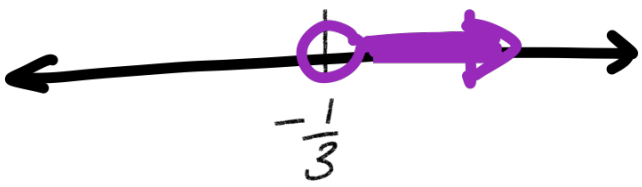
$$-5x < 4 + 7x$$
$$-7x \qquad -7x$$

$$\frac{-12x}{-12} < \frac{4}{-12}$$

flip dividing by negative!

$$x > -\frac{4 \div 4}{12 \div 4}$$

$$x > \frac{-1}{3}$$

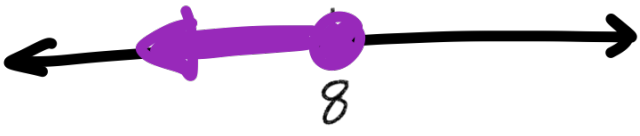


$$-3(4x + 3) \geq -105$$

$$-12x - 9 \geq -105$$
$$+9 \qquad +9$$

$$\frac{-12x}{-12} \geq \frac{-96}{-12}$$ flip!

$$\boxed{x \leq 8}$$



$$\frac{-3(4x + 3)}{-3} \geq \frac{-105}{-3}$$ flip!

$$4x + 3 \leq 35$$
$$-3 \qquad -3$$

$$\frac{4x}{4} \leq \frac{32}{4}$$

$$\boxed{x \leq 8}$$

$8(5-2x) < 4x + 4$

$40 - 16x < 4x + 4$

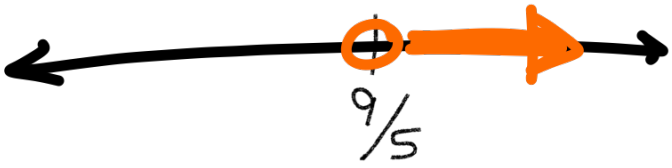
$-4x \quad -4x$

$40 - 20x < 4$

$-40 \quad -40$

$\frac{-20x}{-20} < \frac{-36}{-20}$ flip

$x > \frac{36}{20}$

$x > \frac{36 \div 4}{20 \div 4}$

$x > \frac{9}{5}$