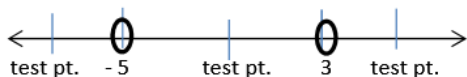


Rational Example:

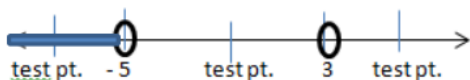
$$\frac{x-3}{x+5} > 0$$

$$x - 3 = 0 \quad x + 5 = 0$$

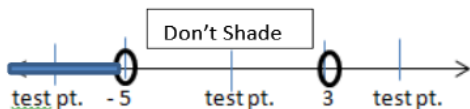
$$x = 3 \quad x = -5$$



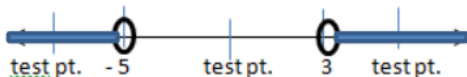
Plug in a number less than -5 such as -6, $\frac{-6-3}{-6+5} > 0$, $\frac{-9}{-1} = 9$, is $9 > 0$... YES, so shade this region



Plug in a number between -5 and 3 such as 0... $\frac{0-3}{0+5} > 0$... $\frac{-3}{5} > 0$... is $\frac{-3}{5} > 0$... NO ... Don't shade this region



Plug in a number greater than 3 such as 4 ... $\frac{4-3}{4+5} > 0$... $\frac{1}{9} > 0$... is $\frac{1}{9} > 0$... YES ... Shade this region



Practice Problems:

1. $\frac{x+5}{x-2} > 0$ 2. $\frac{2x-3}{5x} > 0$ 3. $\frac{2x+5}{x-2} + \frac{4x+7}{x-2} > 0$ (hint: First Add the Fractions)

4. $\frac{x+1}{x-8} < 0$ 5. $\frac{x-8}{x+9} > 0$ 6. $\frac{-2x+7}{x-1} + \frac{4x-3}{x-1} < 0$ (hint: First Add the Fractions)

Rational Inequalities

Steps:

1. Move all terms to one side
2. Simplify to 1 Rational Function or Fraction
3. Set top = 0 Set bottom = 0
4. Make a number line
5. Plug in answers from step #3
6. Use test points to get your answers

4. $\frac{x+1}{x-8} < 0$

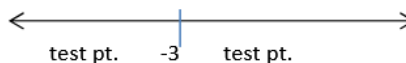
5. $\frac{x-8}{x+9} > 0$

6. $\frac{-2x+7}{x-1} + \frac{4x-3}{x-1} < 0$ (hint: First Add the Fractions)

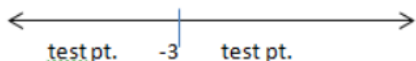
Radical Inequalities

Example: $\sqrt{x+3} > 0$... solve for x. We change the inequality sign to an equals to solve $\sqrt{x+3} = 0$

$(\sqrt{x+3})^2 = 0^2$... $x+3 = 0$... so $x = -3$



test points $x = -4$ and try $x = 0$ to see where to shade



$\sqrt{-4+3} > 0$... $\sqrt{-1} > 0$... not true, so don't shade this region.



$\sqrt{0+3} > 0$... $\sqrt{3} > 0$... this is true, so shade this region.

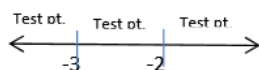
Practice:

1. $\sqrt{3x+2} > 0$ 2. $\sqrt{4x-7} > 0$ 3. $\sqrt{x+8} > 0$

4. $\sqrt{4x+8} < 0$ 5. $\sqrt{\frac{27x}{3}} > 0$ 6. $\sqrt{\frac{6}{18x}} < 0$

Now take this same process to make the number lines for polynomials

1. $(x+3)(x+2) > 0$ 2. $(x-4)(x+7) < 0$ 3. $x^2+7x+12 > 0$



4. $x^2-5x+6 < 0$ 6. $x^2+4x-12 < 0$ 7. $2x^2-7x-3 < 0$

$$2. \sqrt{4x - 7} > 0$$

$$3. \sqrt{x + 8} > 0$$

4. $\sqrt{4x+8} < 0$

5. $\sqrt{\frac{27x}{3}} > 0$

6. $\sqrt{\frac{6}{18x}} < 0$

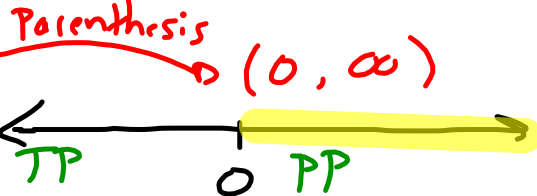
5. $\sqrt{\frac{27x}{3}} > 0$
 P simplify
 " > " open circle

$(\sqrt{9x})^2 = (0)^2$

$9x = 0/9$

$x = 0$

Number line



TP	0	PP
$\sqrt{9x} > 0$		$\sqrt{9x} > 0$
$x = -1$		$x = 1$
$\sqrt{9(-1)} > 0$		$\sqrt{9(1)} > 0$
$\sqrt{-9} > 0$		$\sqrt{9} > 0$
$i\sqrt{9} > 0$		$3 > 0$
		TRUE

Not on the "real" number line.

$$6. \sqrt{\frac{6}{18x}} < 0$$

$$\sqrt{\frac{1}{3x}} < 0$$

No Solution

$$\left(\sqrt{\frac{1}{3x}}\right)^2 = (0)^2 \quad \text{Solve for } x.$$

$$(3x) \frac{1}{3x} = 0(3x)$$

~~$$(3x) \frac{1}{3x} = 0(3x)$$~~

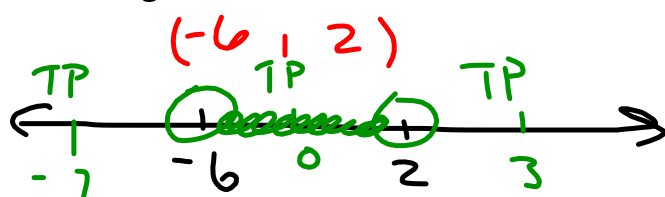
$$1 \neq 0$$

6. $x^2 + 4x - 12 < 0$

$$\begin{array}{l} \wedge \\ 1 \cdot -12 \\ 2 \cdot -6 \\ 3 \cdot -4 \\ \textcircled{6 \cdot -2} \end{array}$$

$$(x+6)(x-2) < 0$$

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



$$\begin{array}{l} (-1)(-9) < 0 \\ 9 < 0 \\ \textcircled{F} \end{array} \quad \left. \begin{array}{l} 6(-2) < 0 \\ -12 < 0 \\ \textcircled{T} \end{array} \right\} \quad \left. \begin{array}{l} (9)(1) < 0 \\ 9 < 0 \\ \textcircled{F} \end{array} \right\}$$

4. $x^2 - 5x + 6 < 0$

6. $x^2 + 4x - 12 < 0$

7. $2x^2 - 7x - 3 < 0$

$$7. 2x^2 - 7x + 3 < 0$$



$$2(-3) = -6$$

$$\textcircled{-1 \cdot -6}$$

$$-2 \cdot -3$$

$$1 \cdot 6$$

$$2 \cdot 3$$

$$2x^2 - 7x - 3 < 0$$

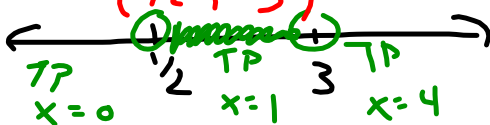
$$\frac{7 \pm \sqrt{-7^2 - 4(2)(-3)}}{2(2)}$$

$$(2x-1) \frac{(2x-6)}{2} < 0$$

$$(2x-1)(x-3) < 0$$

$$x = \frac{1}{2} \quad x = 3$$

$(\frac{1}{2}, 3)$



\textcircled{F}

$$(1)(-2) < 0$$

$$-2 < 0$$

$\textcircled{1}$

$$(-7)(1) < 0$$

$$-7 < 0$$

\textcircled{F}

What if...

the problem is not $>$ or $<$ 0?

the problem does not have common denominators?

the problem has to be graphed?

What if...

the problem is not $>$ or $<$ 0?

$$-4 \leq \text{move the } (-10) + \sqrt{x+2}$$

$$\begin{array}{r} +10 \quad +10 \\ \hline (6)^2 \leq (\sqrt{x+2})^2 \end{array}$$

$$36 \leq x + 2$$

Solve for x .

$$36 = x + 2$$

$$34 = x$$



$$\begin{array}{r} -4 \leq -10 + \sqrt{x+2} \\ +4 \quad +4 \\ \hline (0)^2 \leq (-6 + \sqrt{x+2})^2 \end{array}$$

FOIL

$$-4 \leq -10 + \sqrt{x+2}$$

$$-4 \leq -10 + \sqrt{2}$$

$$-4 \leq -10 + 1.41$$

$$-4 \leq -8.59$$



$$(8)^2 \geq \left(\sqrt{\frac{x}{5}}\right)^2$$

$$5) 64 = \frac{x}{5} (5)$$

$$320 = x$$

$$(-\infty, 320]$$



$$8 \geq \sqrt{\frac{x}{5}}$$

$$8 \geq \sqrt{x}$$

$$8 \geq 0$$

$$x^2 + 5x + 6 \geq 2$$

$$\underline{-2 \quad -2}$$

$$x^2 + 5x + 4 \geq 0$$

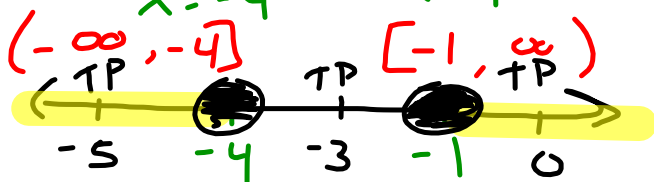
4+1 4·1

$$(x+4)(x+1) \geq 0$$

$$x+4=0 \quad x+1=0$$

$$x = -4$$

$$x = -1$$



(-1)(-4)	(1)(-2)	(4)(1) ≥ 0
4 ≥ 0	-2 ≥ 0	4 ≥ 0
	False	

$$\frac{3x}{4} \geq 5$$

~~$$\frac{3x}{4} = \frac{5}{1}$$~~

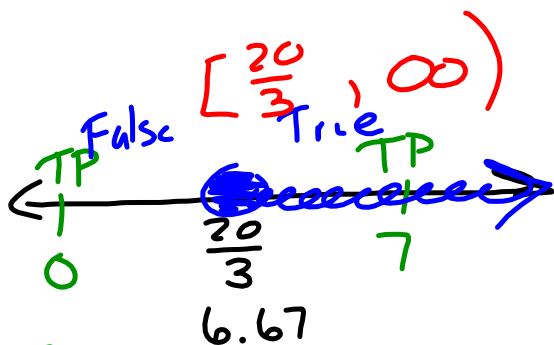
$$3x(1) = 4(5)$$

$$3x = 20$$

$$x = \frac{20}{3}$$

~~$$\frac{3x}{4} = 5(4)$$~~

$$3x = 20 \quad x = \frac{20}{3}$$



$$\frac{0}{4} \geq 5$$

$$0 \geq 5$$

What if...

the problem does not have common denominators?

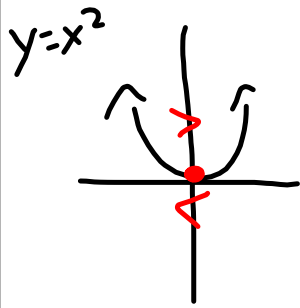
$$\frac{2b}{3} + \frac{b-5}{b-6} \geq 0$$

$$\frac{6}{2} + \frac{6x}{3x^2 - 6x} \leq 0$$

$$\frac{b-5}{b-6} \geq -\frac{2b}{3}$$

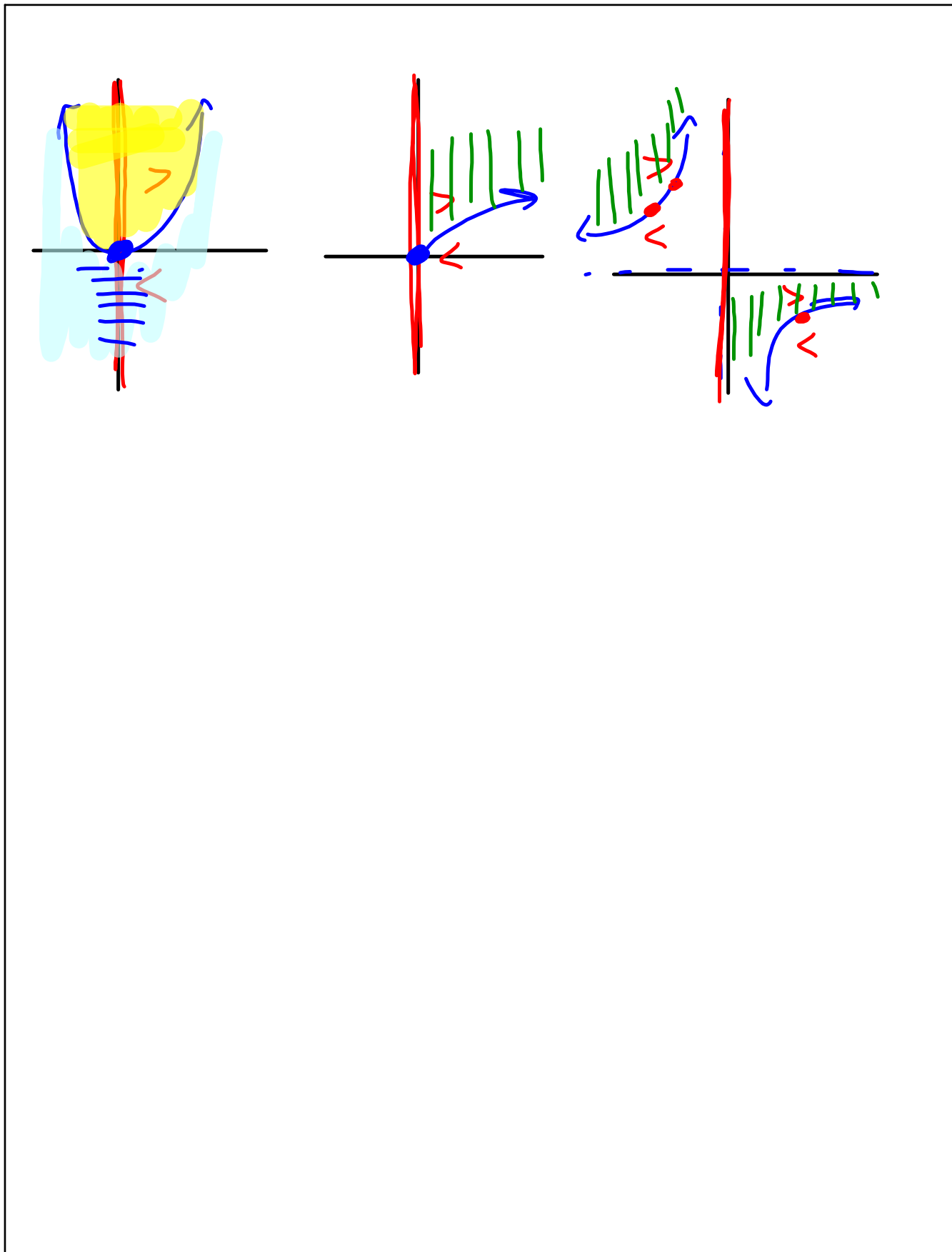
$$\frac{(b-6)2b}{(b-6)3} + \frac{b-5(3)}{b-6(3)} \geq 0$$

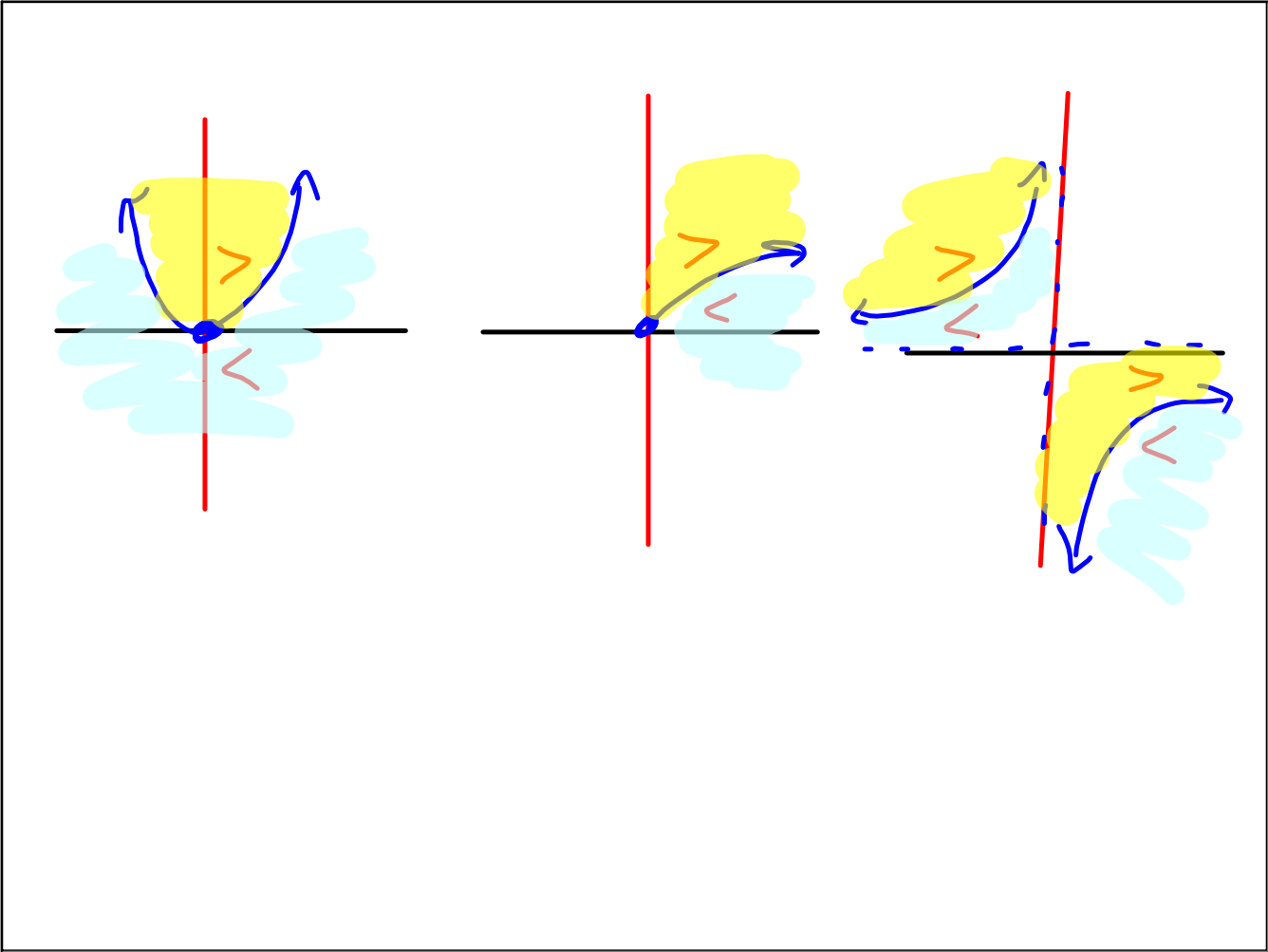
Graph :



$y = \sqrt{3x+2}$ $y = x^2 + 3x + 2$
 $y = \sqrt{x+5} - 4$ $y = x^2 + 9x + 18$
 $y = \frac{x+3}{x-2}$

$$\frac{6}{2} + \frac{6x}{3x^2 - 6x} \leq 0$$





$$\sqrt{5x-4} < 6$$

$$5x-4 < 36$$

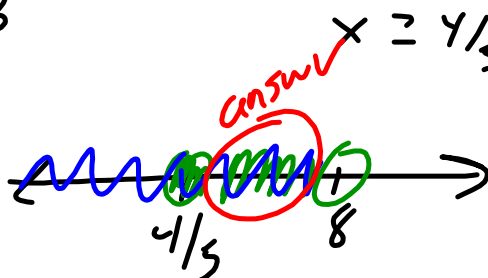
$$5x < 40$$

$$x < 8$$

$$5x-4 \geq 0$$

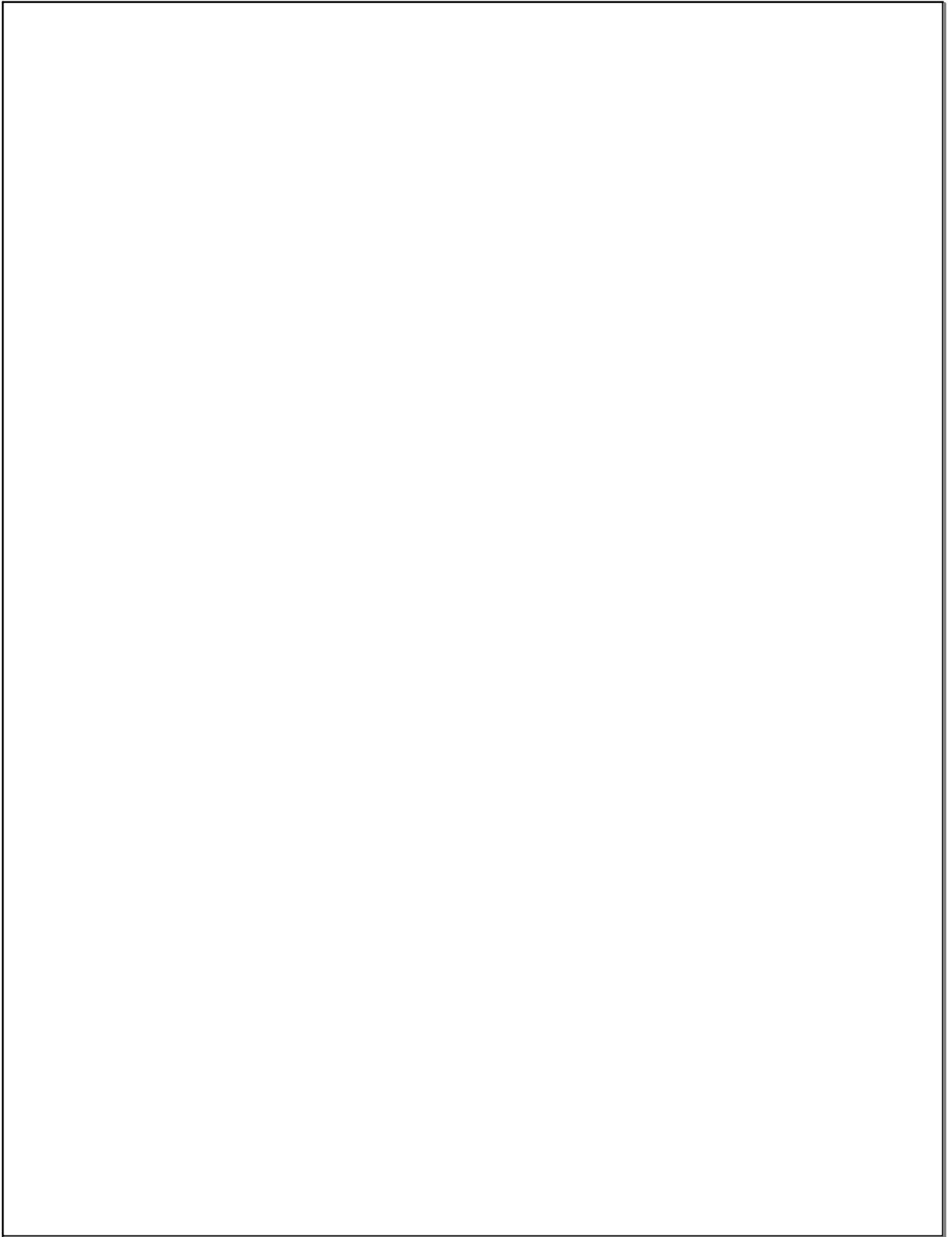
$$5x \geq 4$$

$$x \geq 4/5$$



What if...

the problem has to be graphed?

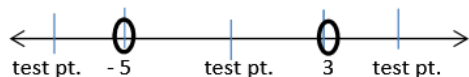


Rational Example:

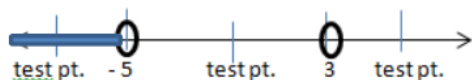
$$\frac{x-3}{x+5} > 0$$

$$x - 3 = 0 \quad x + 5 = 0$$

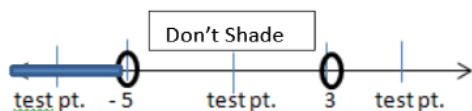
$$x = 3 \quad x = -5$$



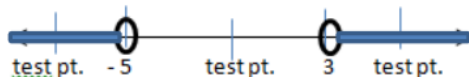
Plug in a number less than -5 such as -6, $\frac{-6-3}{-6+5} > 0$, $\frac{-9}{-1} = 9$, is $9 > 0$... YES, so shade this region



Plug in a number between -5 and 3 such as 0... $\frac{0-3}{0+5} > 0$... $\frac{-3}{5} > 0$... is $\frac{-3}{5} > 0$... NO ... Don't shade this region



Plug in a number greater than 3 such as 4 ... $\frac{4-3}{4+5} > 0$... $\frac{1}{9} > 0$... is $\frac{1}{9} > 0$... YES ... Shade this region



Practice Problems:

1. $\frac{x+5}{x-2} > 0$

2. $\frac{2x-3}{5x} > 0$

3. $\frac{2x+5}{x-2} + \frac{4x+7}{x-2} > 0$ (hint: First Add the Fractions)

4. $\frac{x+1}{x-8} < 0$

5. $\frac{x-8}{x+9} > 0$

6. $\frac{-2x+7}{x-1} + \frac{4x-3}{x-1} < 0$ (hint: First Add the Fractions)

Rational Inequalities

Steps:

1. Move all terms to one side
2. Simplify to 1 Rational Function or Fraction
3. Set top = 0 Set bottom = 0
4. Make a number line
5. Plug in answers from step #3
6. Use test points to get your answers

4. $\frac{x+1}{x-8} < 0$

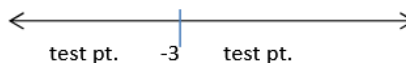
5. $\frac{x-8}{x+9} > 0$

6. $\frac{-2x+7}{x-1} + \frac{4x-3}{x-1} < 0$ (hint: First Add the Fractions)

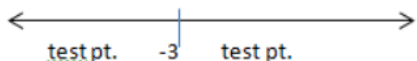
Radical Inequalities

Example: $\sqrt{x+3} > 0$... solve for x. We change the inequality sign to an equals to solve $\sqrt{x+3} = 0$

$(\sqrt{x+3})^2 = 0^2$... $x+3 = 0$... so $x = -3$



test points $x = -4$ and try $x = 0$ to see where to shade



$\sqrt{-4+3} > 0$... $\sqrt{-1} > 0$... not true, so don't shade this region.



$\sqrt{0+3} > 0$... $\sqrt{3} > 0$... this is true, so shade this region.

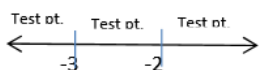
Practice:

1. $\sqrt{3x+2} > 0$ 2. $\sqrt{4x-7} > 0$ 3. $\sqrt{x+8} > 0$

4. $\sqrt{4x+8} < 0$ 5. $\sqrt{\frac{27x}{3}} > 0$ 6. $\sqrt{\frac{6}{18x}} < 0$

Now take this same process to make the number lines for polynomials

1. $(x+3)(x+2) > 0$ 2. $(x-4)(x+7) < 0$ 3. $x^2 + 7x + 12 > 0$



4. $x^2 - 5x + 6 < 0$ 6. $x^2 + 4x - 12 < 0$ 7. $2x^2 - 7x - 3 < 0$

$$2. \sqrt{4x - 7} > 0$$

$$3. \sqrt{x + 8} > 0$$

4. $\sqrt{4x + 8} < 0$

5. $\sqrt{\frac{27x}{3}} > 0$

6. $\sqrt{\frac{6}{18x}} < 0$

6. $\sqrt{\frac{6}{18x}} < 0$

No Solution

$\left(\sqrt{\frac{1}{3x}}\right)^2 < (0)^2$

~~$\left(\frac{1}{3x}\right)^2 = 0(3)$~~
 $\frac{1}{0}$

~~$(3x)\frac{1}{3x} < 0(3x)$~~

$1 < 0$

$$5. \sqrt{\frac{27x}{3}} > 0 \Rightarrow (\sqrt{9x})^2 > (0)^2$$

$9x > 0$
 $x > 0$

$$\left(\sqrt{\frac{27x}{3}}\right)^2 > (0)^2 \quad \left(\sqrt{\frac{27x}{3}}\right)^2 = (0)^2$$

$$\frac{27x}{3} > 0$$

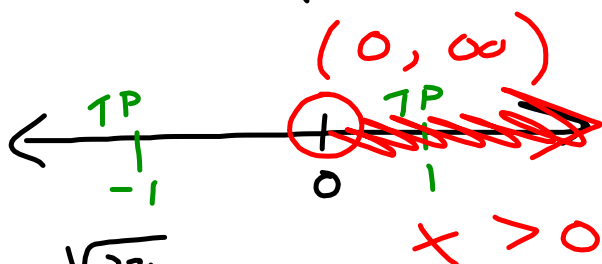
$$\frac{27x}{3} = 0$$

$$9x = 0$$

$$x = 0$$

$$\frac{9x}{9} > \frac{0}{9}$$

$$x > 0$$



$$\sqrt{\frac{27x}{3}} > 0$$

$$\sqrt{\frac{27(-1)}{3}} > 0$$

$$\sqrt{\frac{-27}{3}} > 0$$

$$\sqrt{-9} > 0$$

$$i\sqrt{9} > 0$$

$$3i > 0$$

$$\neq 0$$

6. $\sqrt{\frac{6}{18x}} < 0$

$$\left(\sqrt{\frac{1}{3x}}\right)^2 < (0)^2$$

$$\frac{1}{3x} < 0$$

$\approx \Rightarrow$

$$\cancel{(3x)} \frac{1}{\cancel{3x}} = 0(3x)$$

$$1 \neq 0$$

No Solution

think about

$$5. \sqrt{\frac{27x}{3}} > 0$$

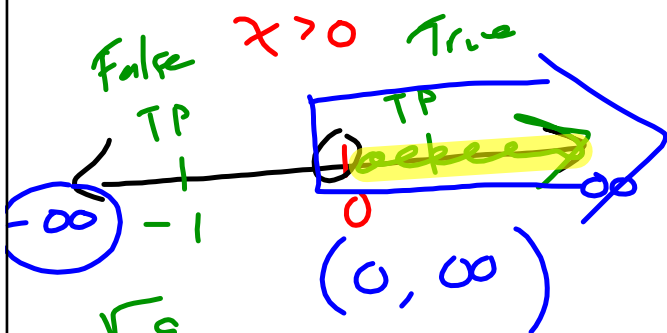
$$\left(\frac{\sqrt{27x}}{\sqrt{3}}\right)^2 > (0)^2$$

$$\frac{27x}{3} > 0$$

$$9x > 0$$

$$\sqrt{\frac{9x}{1}} > 0$$

$$\sqrt{9x} > 0$$



$$\sqrt{-9}$$

$$i\sqrt{9}$$

$$3i$$

4. $x^2 - 5x + 6 < 0$

6. $x^2 + 4x - 12 < 0$

7. $2x^2 - 7x - 3 < 0$

$$7. 2x^2 - 7x - 3 < 0$$

$2(-3) = -6$
 $5 = -1 \cdot 6$
 $1 = -2 \cdot 3$
 $-5 = 1 \cdot -6$
 $-1 = 2 \cdot -3$

$$\frac{7 \pm \sqrt{7^2 - 4(2)(-3)}}{2(2)}$$

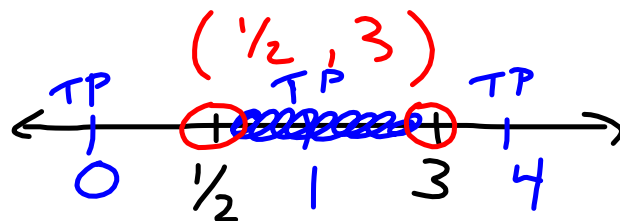
$$7. 2x^2 - 7x + 3 < 0$$

$2(3) = 6$
 $1 \cdot 6$
 $2 \cdot 3$
 $-1 \cdot -6$
 $-2 \cdot -3$

$$(2x - 1)(2x - 6) < 0$$

$$(2x - 1)(x - 3) < 0$$

$$x = \frac{1}{2} \quad x = 3$$



$$3 < 0$$

No

$$\left. \begin{array}{l} (1)(-2) < 0 \\ -2 < 0 \end{array} \right\} \text{YES}$$

$$\left. \begin{array}{l} (7)(1) < 0 \\ 7 < 0 \end{array} \right\} \text{No}$$

$$6. x^2 + 4x - 12 < 0$$

$$(x + 6)(x - 2) < 0$$

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



$(-1)(-9) < 0$	$(6)(-2) < 0$	$(9)(1) < 0$
$9 < 0$	$-12 < 0$	$9 < 0$
No	Yes	No

7. $2x^2 - 7x - 3 < 0$

$2(-3) = -6$

$-5 = 1 \cdot -6$

$-1 = 2 \cdot -3$

$1 = 3 \cdot -2$

$5 = 6 \cdot -1$



$$\frac{7 \pm \sqrt{7^2 - 4(2)(-3)}}{2(2)}$$

change for Notes

7. $2x^2 - 7x + 3 < 0$

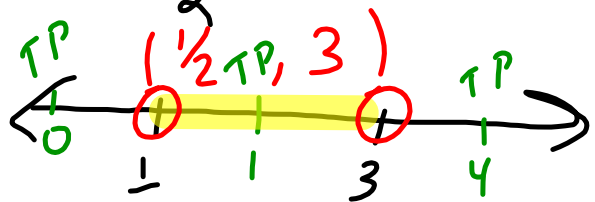
$2(3) = 6$

$-1 \cdot -6$

$(2x-1)(2x-6) < 0$

$(2x-1)(x-3) < 0$

$x = \frac{1}{2} \quad x = 3$



$3 < 0$

No

$-2 < 0$

YES

$(7)(1) < 0$

$7 < 0$

No

What if...

the problem is not $>$ or $<$ 0?

the problem does not have common denominators?

the problem has to be graphed? ... homework

What if...

the problem is not $>$ or $<$ 0?

$$-4 \geq -10 + \sqrt{x+2}$$

$$8 \leq \sqrt{\frac{x}{5}}$$

$(8)^2 \leq \left(\sqrt{\frac{x}{5}}\right)^2$
 $64 \leq \frac{x}{5}$
 $320 \leq x$

$x \geq 320$
 $[320, \infty)$

$320 = x$

TP 0 TP 320 TP 321
 $8 \leq \sqrt{\frac{0}{5}}$
 $8 \leq \sqrt{\frac{0}{5}}$
 $8 \leq 0$
 No

$[320, \infty)$

$$(-4) \geq (-10 + \sqrt{x+2})^2$$

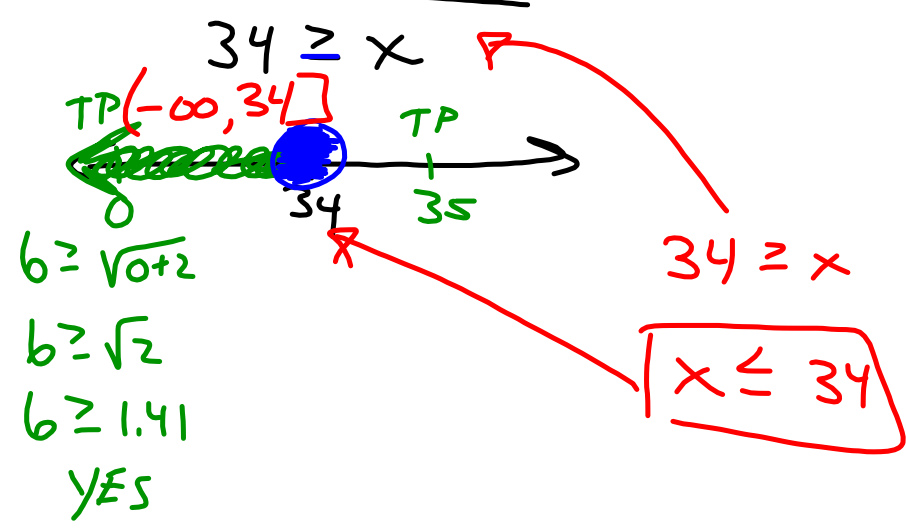
$$(-10 + \sqrt{x+2})(-10 + \sqrt{x+2})$$

FOIL

$$\begin{array}{r} -4 \geq -10 + \sqrt{x+2} \\ +10 \quad +10 \\ \hline 6 \geq \sqrt{x+2} \\ (6)^2 \geq (\sqrt{x+2})^2 \\ 36 \geq x+2 \\ -2 \quad -2 \\ \hline 34 \geq x \end{array}$$

$$\begin{array}{r} -4 \geq -10 + \sqrt{x+2} \\ +4 \quad +4 \\ \hline 0 \geq -6 + \sqrt{x+2} \\ +6 \quad +6 \\ \hline 6 \leq \sqrt{x+2} \end{array}$$

$$\begin{array}{r} 36 = x+2 \\ 34 = x \end{array}$$



$-4 \geq -10 + \sqrt{x+2}$ $\begin{array}{r} +10 \quad +10 \\ \hline 6 \geq \sqrt{x+2} \end{array}$	$(-4)^2 \geq (-10 + \sqrt{x+2})^2$ <p><u>FOIL</u></p>	$-4 \geq -10 + \sqrt{x+2}$ $\begin{array}{r} +4 \quad +4 \\ \hline (0)^2 \geq (6 + \sqrt{x+2})^2 \\ +6 \quad +6 \\ \hline \text{FAIL} \end{array}$ $6 \geq \sqrt{x+2}$
---	---	--

$$-4 \geq -10 + \sqrt{x+2}$$

$$\begin{array}{r} +10 \quad +10 \\ \hline (6)^2 \geq (\sqrt{x+2})^2 \end{array}$$

$$36 \geq x + 2$$

$$\begin{array}{r} -2 \quad -2 \\ \hline 34 \geq x \end{array}$$

$$34 \geq x \quad x \leq 34$$



$$(-\infty, 34]$$

What if...

the problem does not have common denominators?

$$\frac{2b}{3} + \frac{b-5}{b-6} \leq 0$$

$$\frac{6}{2} + \frac{6x}{3x^2 - 6x} \geq 0$$

$$\frac{b-5}{b-6} \leq -\frac{2b}{3}$$

$$\frac{2b}{3} + \frac{b-5}{b-6} \leq 0$$

change to equals
Must set bottom = 0

$$\frac{b-5}{b-6} \leq \frac{-2b}{3}$$

$$\frac{b-5}{b-6} = \frac{-2b}{3}$$

$$3(b-5) = -2b(b-6)$$

$$3b-15 = -2b^2+12b$$

$$2b^2 - 9b - 15 = 0$$

$$\frac{2b(b-6) + (b-5)(3)}{3(b-6)} \leq 0$$

$$\frac{2b^2 - 9b - 15}{3b - 18} \leq 0$$

closed circle

Restriction

Top: $2b^2 - 9b - 15 = 0$

Bottom: $3b - 18 = 0$

$$3(b-6) = 0$$

open circle

$$b-6 = 0$$

$$b = 6$$

$$\frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$\frac{(b-6)2b}{(b-6)3} + \frac{(b-5)(3)}{(b-6)(3)} \leq 0$$

* common denominator

$$\frac{2b^2 - 12b + 3b - 15}{3b - 18} \leq 0$$

$$\frac{2b^2 - 9b - 15}{3b - 18} \leq 0$$

closed circle

open circle

Top: $2b^2 - 9b - 15 = 0$

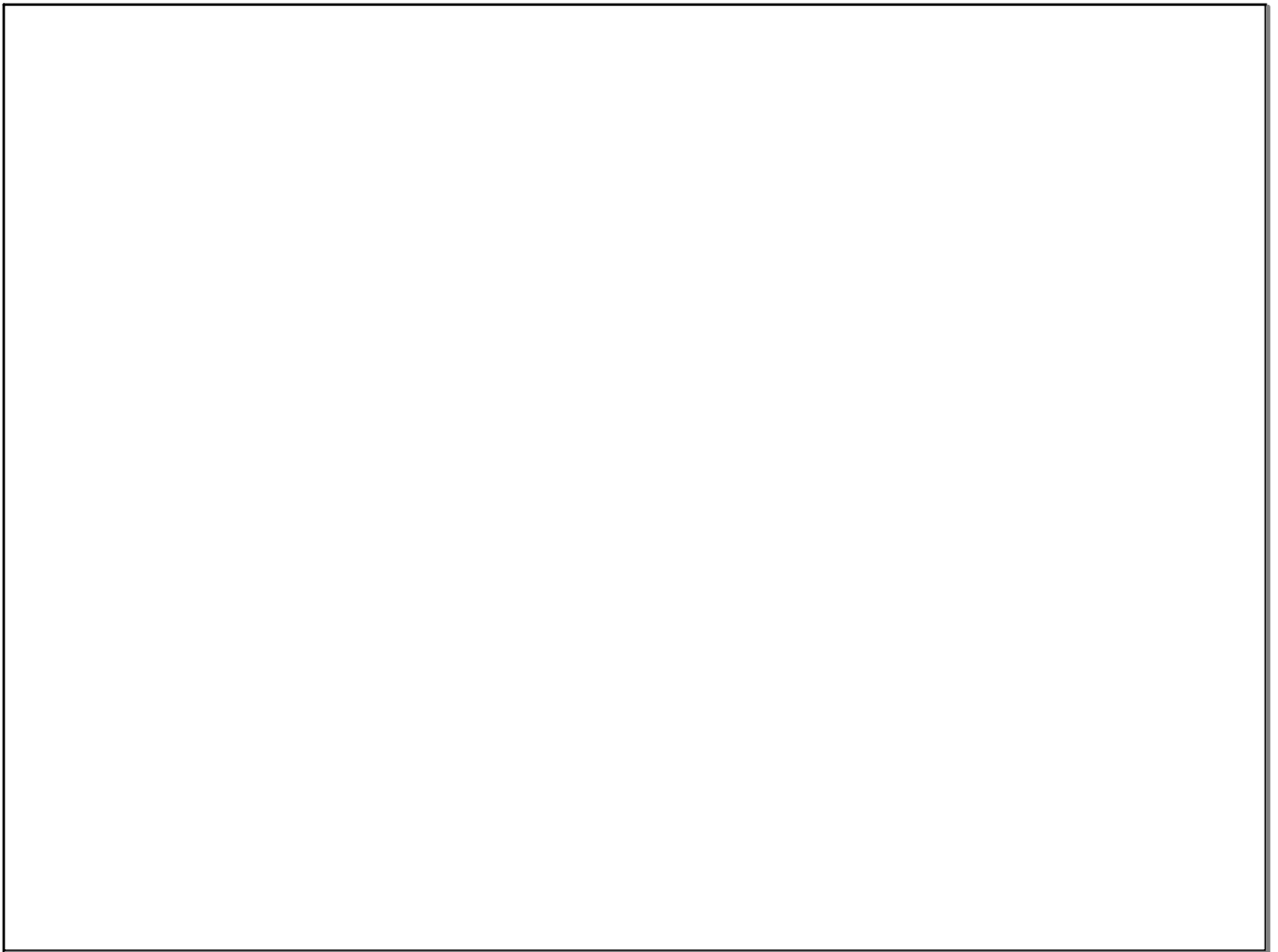
\uparrow \uparrow
 -30
 \swarrow \searrow
 -1 · 30
 -2 · 15
 -3 · 10

Bottom: $3b - 18 = 0$

$3b = 18$
 $b = 6$

What if...

the problem has to be graphed?

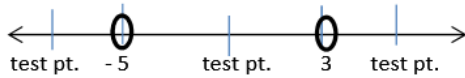


Rational Example:

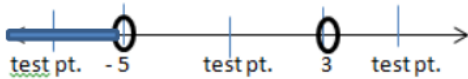
$$\frac{x-3}{x+5} > 0$$

$$x - 3 = 0 \quad x + 5 = 0$$

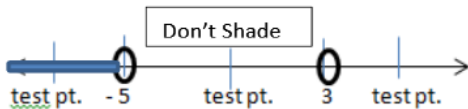
$$x = 3 \quad x = -5$$



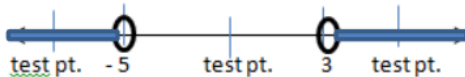
Plug in a number less than -5 such as -6, $\frac{-6-3}{-6+5} > 0$, $\frac{-9}{-1} = 9$, is $9 > 0$... YES, so shade this region



Plug in a number between -5 and 3 such as 0... $\frac{0-3}{0+5} > 0$... $\frac{-3}{5} > 0$... is $\frac{-3}{5} > 0$... NO ... Don't shade this region



Plug in a number greater than 3 such as 4 ... $\frac{4-3}{4+5} > 0$... $\frac{1}{9} > 0$... is $\frac{1}{9} > 0$... YES ... Shade this region



Practice Problems:

1. $\frac{x+5}{x-2} > 0$ 2. $\frac{2x-3}{5x} > 0$ 3. $\frac{2x+5}{x-2} + \frac{4x+7}{x-2} > 0$ (hint: First Add the Fractions)

4. $\frac{x+1}{x-8} < 0$ 5. $\frac{x-8}{x+9} > 0$ 6. $\frac{-2x+7}{x-1} + \frac{4x-3}{x-1} < 0$ (hint: First Add the Fractions)

Rational Inequalities

Steps:

1. Move all terms to one side
2. Simplify to 1 Rational Function or Fraction
3. Set top = 0 Set bottom = 0
4. Make a number line
5. Plug in answers from step #3
6. Use test points to get your answers

4. $\frac{x+1}{x-8} < 0$

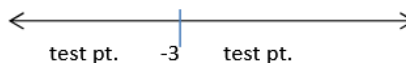
5. $\frac{x-8}{x+9} > 0$

6. $\frac{-2x+7}{x-1} + \frac{4x-3}{x-1} < 0$ (hint: First Add the Fractions)

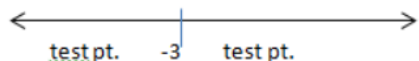
Radical Inequalities

Example: $\sqrt{x+3} > 0$... solve for x. We change the inequality sign to an equals to solve $\sqrt{x+3} = 0$

$(\sqrt{x+3})^2 = 0^2$... $x+3 = 0$... so $x = -3$



test points $x = -4$ and try $x = 0$ to see where to shade



$\sqrt{-4+3} > 0$... $\sqrt{-1} > 0$... not true, so don't shade this region.



$\sqrt{0+3} > 0$... $\sqrt{3} > 0$... this is true, so shade this region.

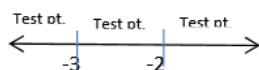
Practice:

1. $\sqrt{3x+2} > 0$ 2. $\sqrt{4x-7} > 0$ 3. $\sqrt{x+8} > 0$

4. $\sqrt{4x+8} < 0$ 5. $\sqrt{\frac{27x}{3}} > 0$ 6. $\sqrt{\frac{6}{18x}} < 0$

Now take this same process to make the number lines for polynomials

1. $(x+3)(x+2) > 0$ 2. $(x-4)(x+7) < 0$ 3. $x^2 + 7x + 12 > 0$



4. $x^2 - 5x + 6 < 0$ 6. $x^2 + 4x - 12 < 0$ 7. $2x^2 - 7x - 3 < 0$

$$2. \sqrt{4x - 7} > 0$$

$$3. \sqrt{x + 8} > 0$$

4. $\sqrt{4x + 8} < 0$

5. $\sqrt{\frac{27x}{3}} > 0$

6. $\sqrt{\frac{6}{18x}} < 0$

4. $x^2 - 5x + 6 < 0$

6. $x^2 + 4x - 12 < 0$

7. $2x^2 - 7x - 3 < 0$

What if...

the problem is not $>$ or $<$ 0?

the problem does not have common denominators?

the problem has to be graphed?

What if...

the problem is not $>$ or $<$ 0?

$$-4 = -10 + \sqrt{x+2}$$

$$8 = \sqrt{\frac{x}{5}}$$

What if...

the problem does not have common denominators?

$$\frac{2b}{3} + \frac{b-5}{b-6}$$

$$\frac{6}{2} + \frac{6x}{3x^2 - 6x}$$

What if...

the problem has to be graphed?

