

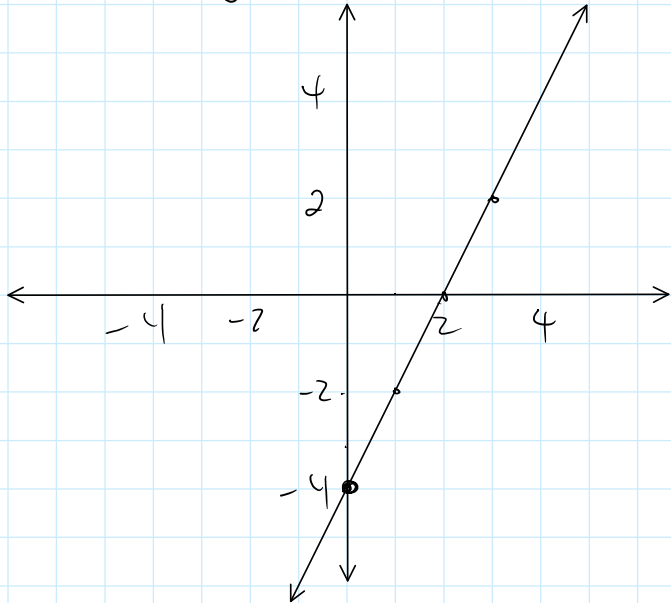
Solving Inequalities Graphically

Monday, January 6, 2020 11:43 AM

$$y = mx + b$$

$$y = 2x - 4$$

$b = y\text{-int}$
 $m = \text{slope}$

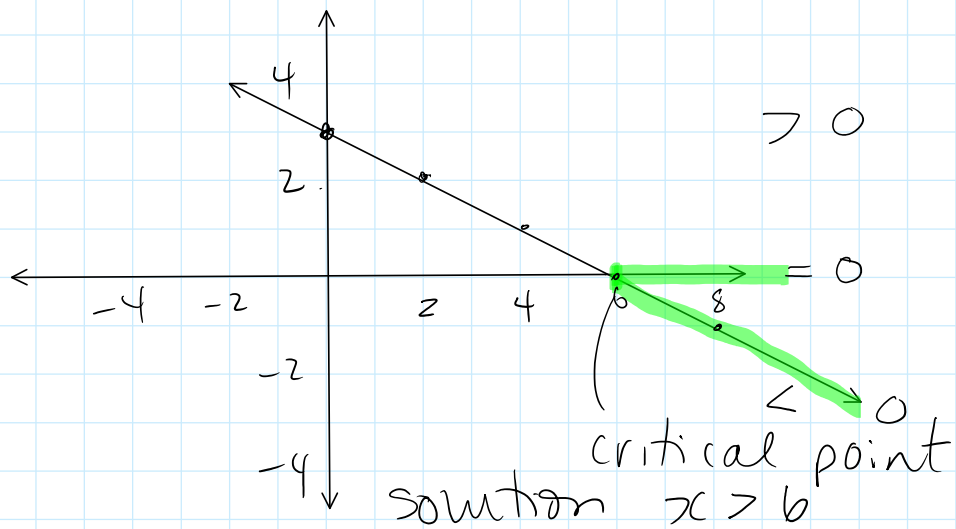


Where is $y = 0$ $x = 2$
 Where is $y > 0$ $x > 2$
 Where is $y < 0$ $x < 2$

Solve $2x - 4 = 0$
 $x = 2$
 $2x - 4 > 0$
 $x > 2$
 $2x - 4 < 0$
 $x < 2$

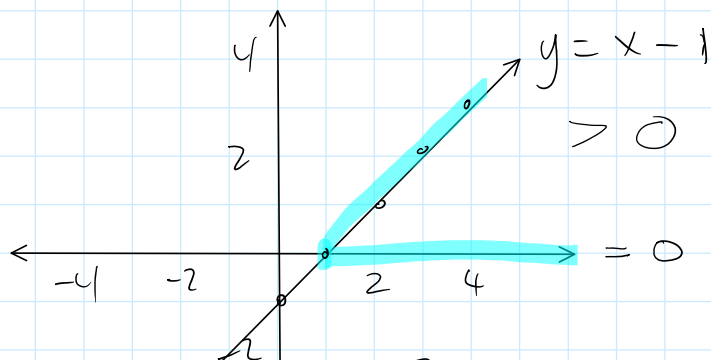
Solve $-\frac{1}{2}x + 3 < 0$

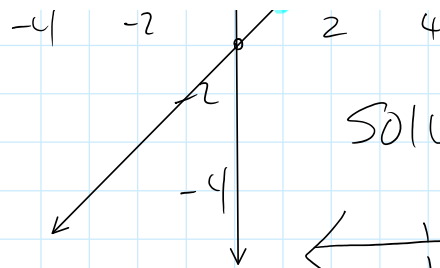
Graph $y = -\frac{1}{2}x + 3$



Solve $x - 1 \geq 0$

① Graph $y = x - 1$



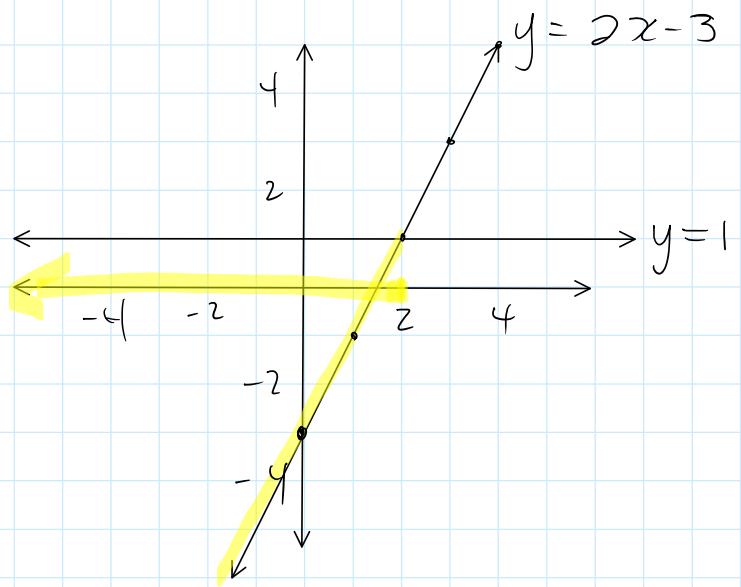


Solution $x \geq 1$

Use \bullet for \leq or \geq
 \circ for $<$ or $>$

Solve $2x - 3 \leq 1$

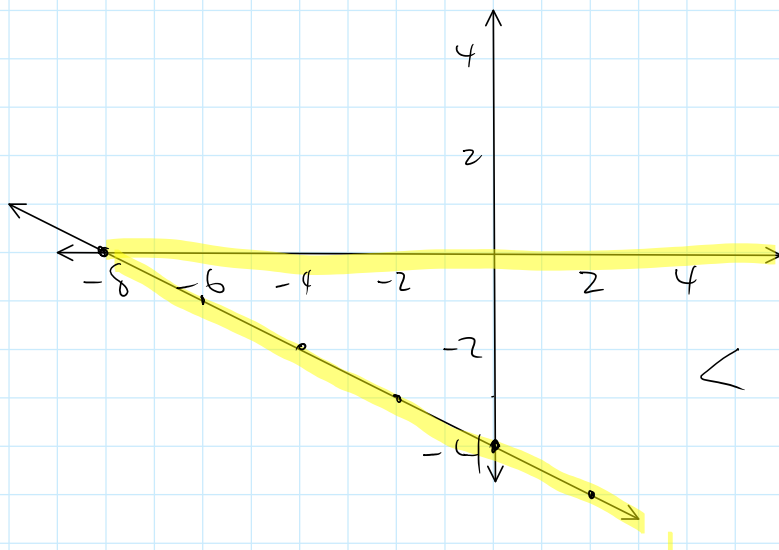
Graph $y = 2x - 3$
 and $y = 1$



Solution $x \leq 2$

Solve $\frac{1}{2}x - 1 < x + 3$
 $-\frac{1}{2}x - 3 < -x - 3$
 $-\frac{1}{2}x - 4 < 0$

Solution $x > -8$

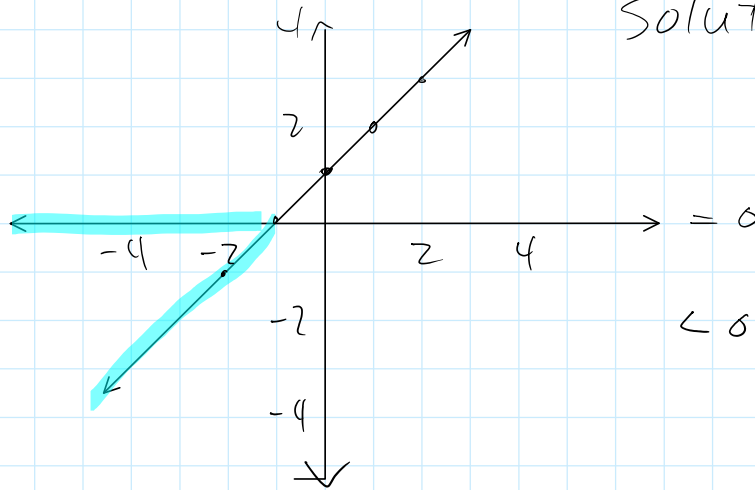


< 0

Solution $x > -8$

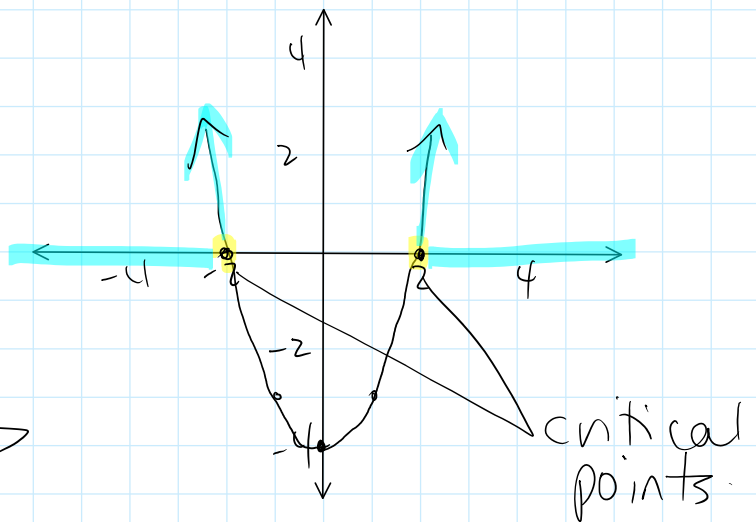
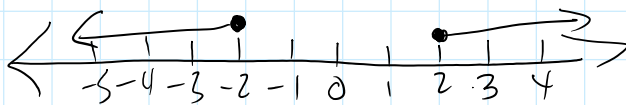
Try solve $\frac{2x+3}{-x-2} \leq \frac{x+2}{-x-2}$
 $x+1 \leq 0$

Solution $x \leq -1$



Solve $x^2 - 4 \geq 0$
 $(x+2)(x-2) \geq 0$
 x-int: $(-2, 0)$ $(2, 0)$
 vertex: $(0, -4)$

Solution: $x \leq -2$ or $x \geq 2$

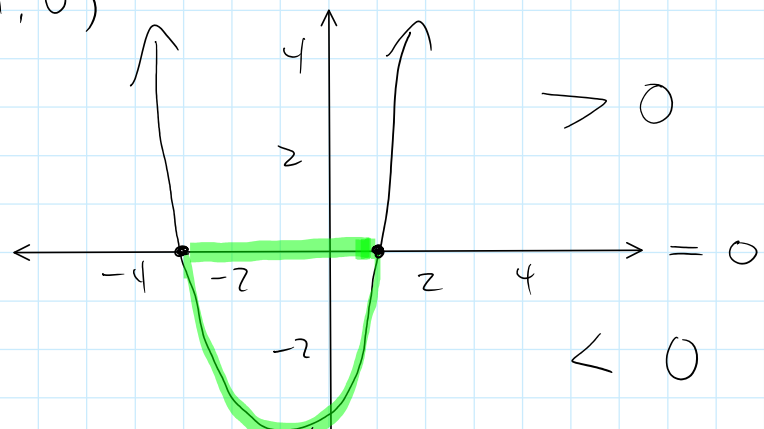


Solve $x^2 + 2x - 3 < 0$
 $(x+3)(x-1)$
 x-int $(-3, 0)$ $(1, 0)$

Solution

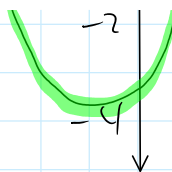
$-3 < x < 1$

↑ smaller
 both <

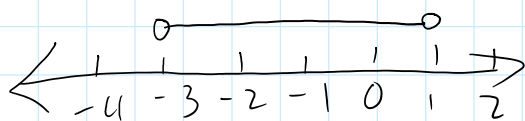


smaller #

both <



< 0



Try

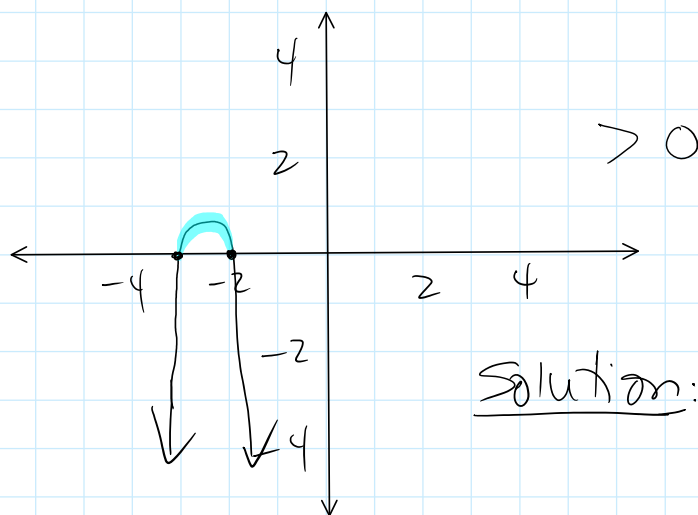
Solve: $-x^2 - 5x - 6 > 0$

$-(x^2 + 5x + 6) > 0$

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

$-(x+2)(x+3) = 0$

x -int $(-2, 0)$ $(-3, 0)$.



Solution: $-3 < x < -2$

Pg 355 - 361 # 3-13

6 a) $-\frac{3}{5}x + 5 \geq 2 - x$

$+\frac{5}{5}x \quad -2 \quad -2 + x$

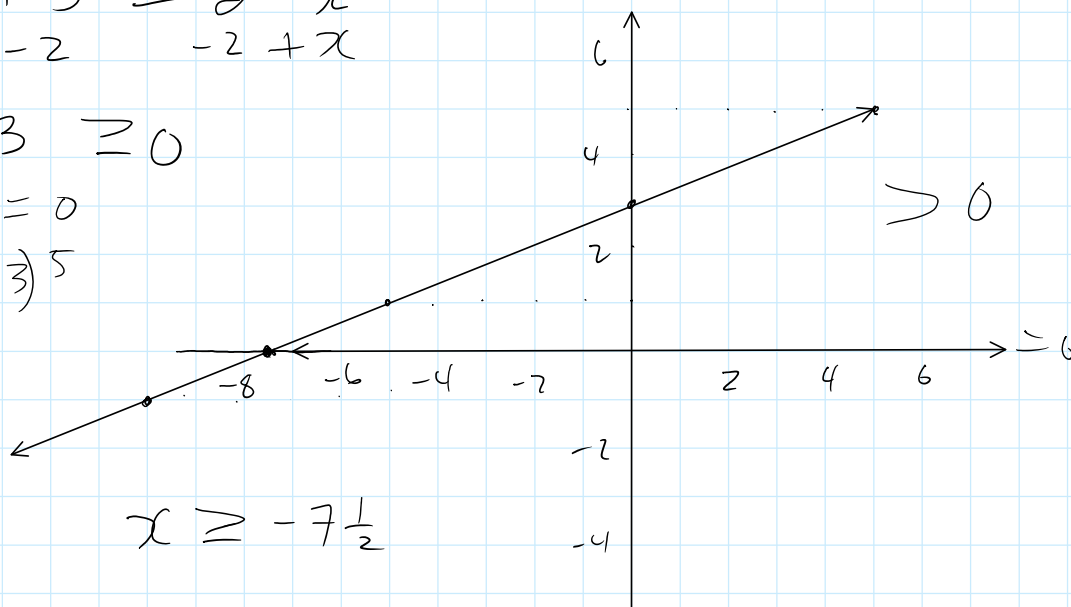
$\frac{2}{5}x + 3 \geq 0$

$\frac{2}{5}x + 3 = 0$

$5(\frac{2}{5}x) = (-3)5$

$\frac{2x}{2} = \frac{-15}{2}$

$x = -7\frac{1}{2}$



$x \geq -7\frac{1}{2}$

$$x \geq -1\frac{1}{2}$$

-4
-6

$$10) -0.5x^2 - 2x + 3 \leq -2$$

$$\boxed{-0.5x^2 - 2x + 5 \leq 0}$$

$$x \leq -5.74$$

$$x \geq 1.74$$

$$\boxed{x < -5.74 \vee x > 1.74}$$

