

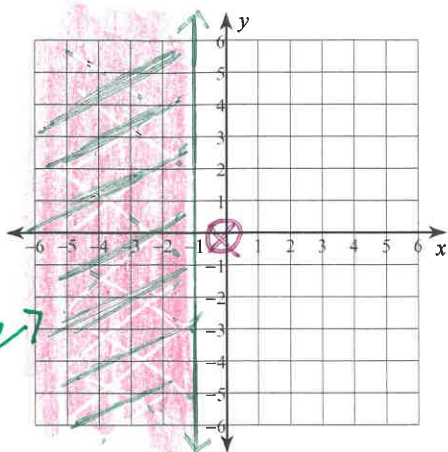
Review 6.7, 7.6, 7.1, 7.5a

Sketch the graph of each linear inequality. Show a test point ^{ALSO LABEL SOLUTION REGION (S.R.)}

1) $x \leq -1$

SOLID

(SR)

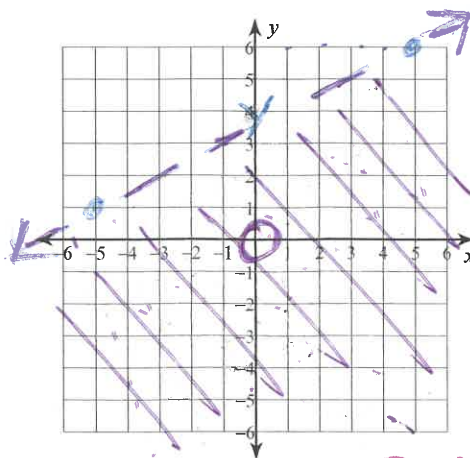


$T(0,0) \rightarrow 0 \leq -1$ (F)

2) $y < \frac{3}{5}x + 4$

DOTTED

(SR)

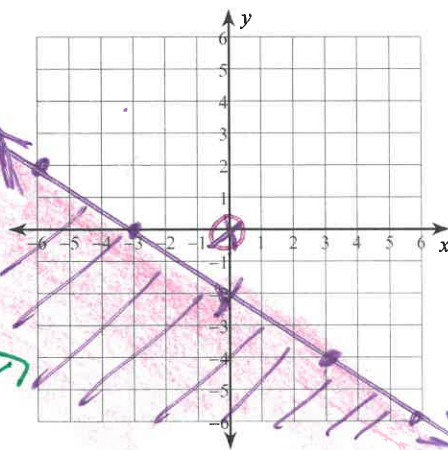


$T(0,0) \rightarrow 0 < \frac{3}{5}(0) + 4$
 $0 < 4$ (T)

3) $y \leq -\frac{2}{3}x - 2$

SOLID

(SR)



$T(0,0) \rightarrow 0 \leq -\frac{2}{3}(0) - 2$
 $0 \leq -2$ (F)

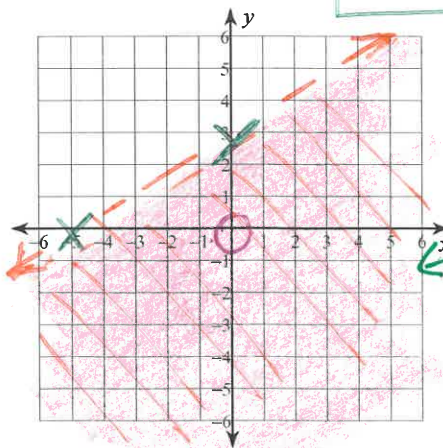
4) $3x - 5y > -15$

DOTTED

(A) Graph w/ intercepts

$x: -5 \quad y: 3$

(SR)



$T(0,0) \rightarrow 3(0) - 5(0) > -15$
 $0 > -15$ (F)

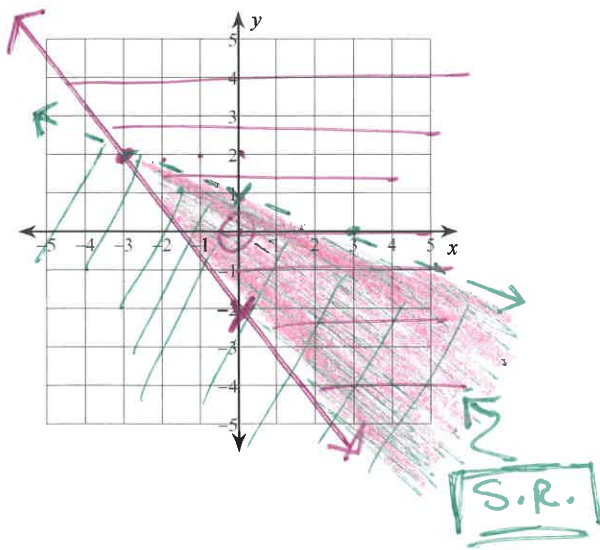
(B) Graph w/ $y = mx + b$

$$\begin{array}{r} 3x - 5y > -15 \\ -3x \quad \quad -3x \\ \hline -5y > -3x - 15 \\ \frac{-5y}{-5} > \frac{-3x}{-5} \frac{-15}{-5} \end{array}$$

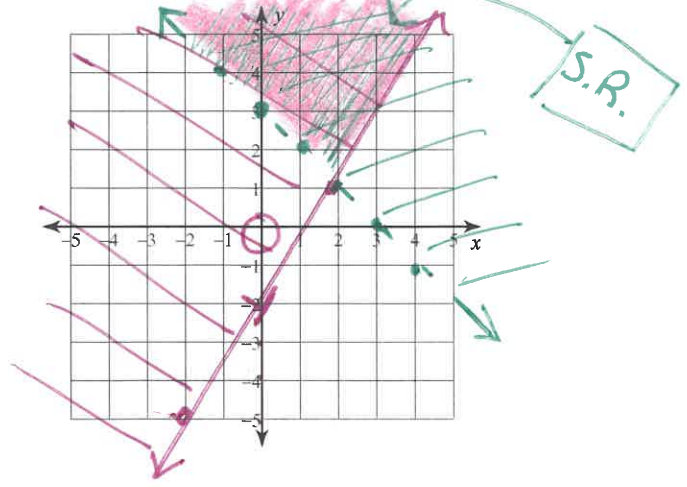
$y < \frac{3}{5}x + 3$
 $T(0,0) \rightarrow 0 < 3$ (T)

Sketch the solution to each system of inequalities. Show a test point for each equation.

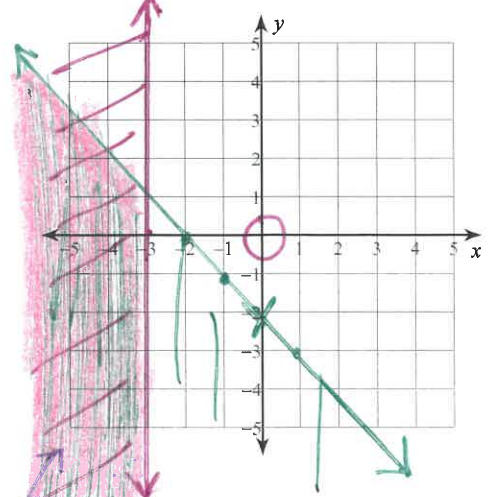
5) $y \geq -\frac{4}{3}x - 2$ $T(0,0) 0 \geq -2$ (T)
 DOTTED $y < -\frac{1}{3}x + 1$ $T(0,0) 0 < 1$ (T)



6) $y \geq \frac{3}{2}x - 2$ $T(0,0) 0 \geq -2$ (T)
 SOLID $y > -x + 3$ $T(0,0) 0 > 3$ (F)

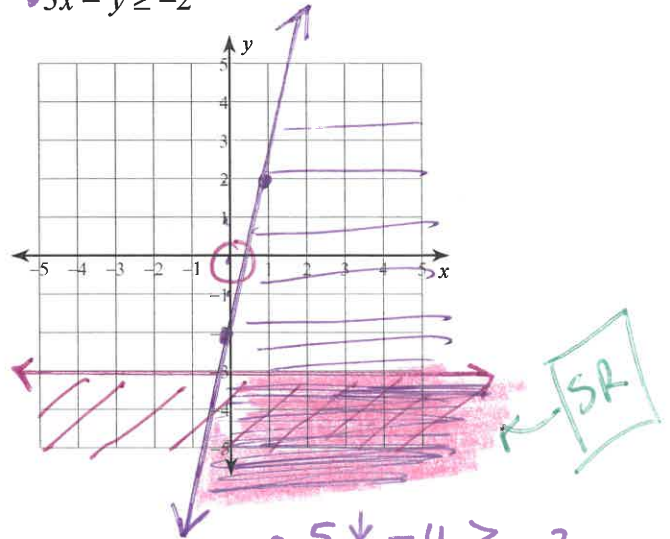


7) $x \leq -3$ $T(0,0) 0 \leq -3$ (F)
 BOTH SOLID $x + y \leq -2$



$x + y \leq -2$
 $-x \quad -x$
 $y \leq -x - 2$
 $T(0,0) 0 \leq -2$ (F)

8) $y \leq -3$ $T(0,0) 0 \leq -3$ (F)
 BOTH SOLID $5x - y \geq -2$

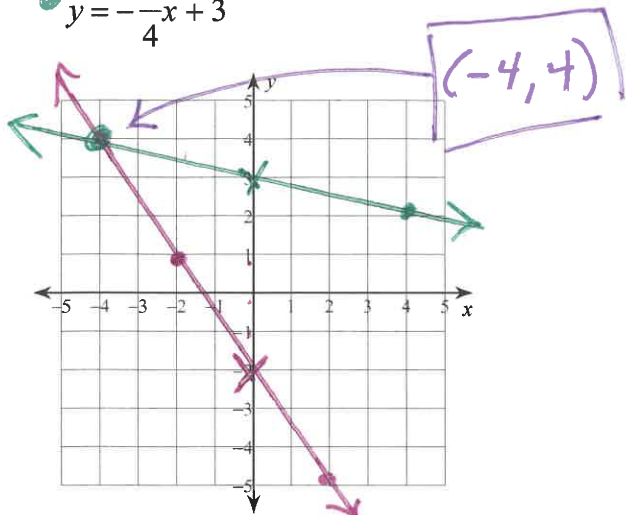


$5x - y \geq -2$
 $-5x \quad -5x$
 $-y \geq -5x - 2$
 $-y \geq \frac{-5x - 2}{-1} \frac{1}{1}$
 $y \leq 5x - 2$
 $T(0,0) 0 \leq -2$ (F)

Remember switch symbol

Solve each system by graphing (recommend checking)

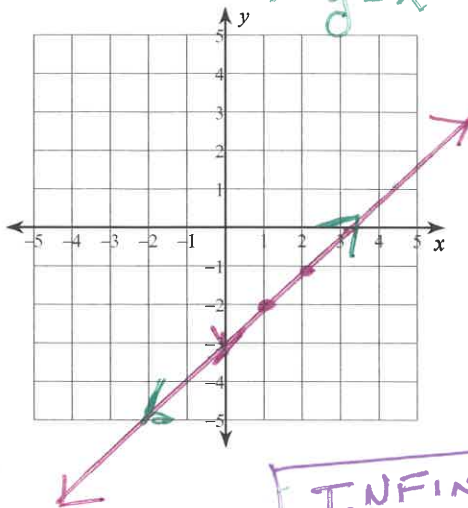
9) $y = -\frac{3}{2}x - 2$
 $y = -\frac{1}{4}x + 3$



• C: $4 = -\frac{3}{2}(-4) - 2$
 $4 = 6 - 2$
 $4 = 4 \checkmark$

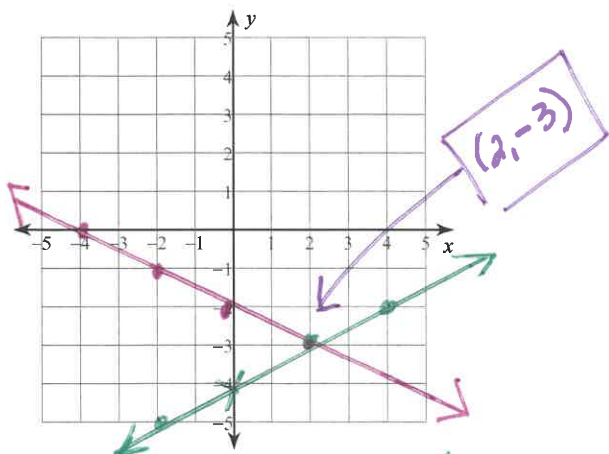
• C: $4 = -\frac{1}{4}(-4) + 3$
 $4 = 1 + 3$
 $4 = 4 \checkmark$

10) $-y = 3 - x \rightarrow y = x - 3$
 $-y + x = 3 \rightarrow y = x - 3$ } Some line



INFINITE SOLUTIONS

11) $x + 2y = -4$
 $x - 2y = 8$



• $x + 2y = -4$
 $-x \quad -x$

 $2y = -x - 4$
 $\frac{2y}{2} = \frac{-x}{2} - \frac{4}{2}$

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

C: $2 + 2(-3) = -4$
 $2 - 6 = -4$
 $-4 = -4 \checkmark$

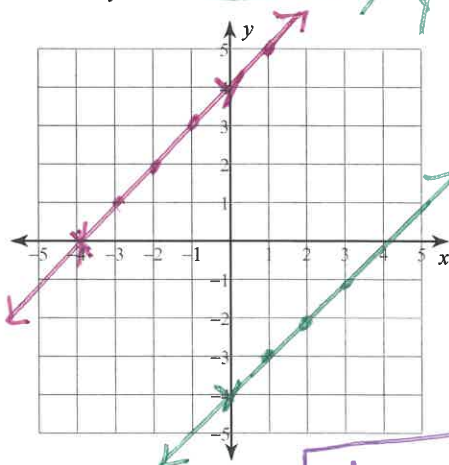
• $x - 2y = 8$
 $-x \quad -x$

 $-2y = -x + 8$
 $\frac{-2y}{-2} = \frac{-x}{-2} + \frac{8}{-2}$

$y = \frac{1}{2}x - 4$

C: $2 - 2(-3) = 8$
 $2 + 6 = 8$
 $8 = 8 \checkmark$

12) $x - y = -4 \rightarrow y = x + 4$
 $x - y = 4 \rightarrow y = x - 4$



NO SOLUTION

IMPORTANT
 CHECKIN ORIG EQ'S!!

Tell whether the given point is a solution to the system of equation. Explain your decision.

13) $-x - 2y = 7$ Point $(-5, -1)$
• $2x - y = -11$

C: $-(-5) - 2(-1) = 7$
 $5 + 2 = 7$
 $7 = 7 \checkmark$

C: $2(-5) - (-1) = -11$
 $-10 + 1 = -11$
 $-9 \neq -11 \text{ (F)}$

NOT SOLUTION

14) $2x + 3y > -9$ Point $(3, 3)$
• $2x - 3y > -3$

C: $2(3) + 3(3) > -9$
 $15 > -9 \checkmark$

C: $2(3) - 3(3) > -3$
 $6 - 9 > -3$
 $-3 > -3 \times \text{(F)}$

NOT SOLUTION

15) $2x + 3y > 9$ Point $(3, 5)$
• $2x - 3y < 3$

C: $2(3) + 3(5) > 9$
 $6 + 15 > 9$
 $21 > 9 \checkmark$

C: $2(3) - 3(5) < 3$
 $6 - 15 < 3$
 $-9 < 3 \checkmark$

SOLUTION