Academic Algebra 1 Name KEY

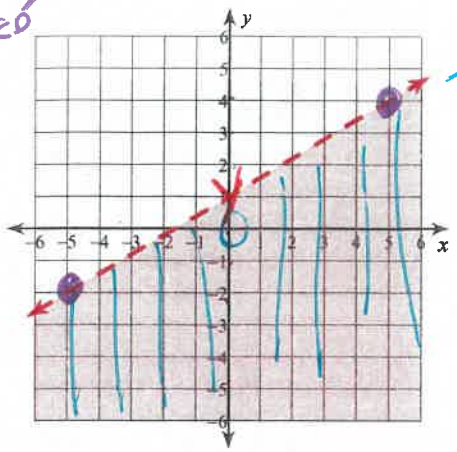
Practice for Sections: 6.7, 7.1, 7.5, 7.6

Date _____ Period ____

SECTION 6.7a: Sketch the graph of each linear inequality. Show a test point

1) $y < \frac{3}{5}x + 1$ $M=\frac{3}{5}$ $B=1$

DOTTED



$T(0,0)$

$0 < 1$ (T)

Shade the side with (0,0)

2) YOUR NOTES:

STEP I

SOLID LINE $\leq, \geq, =$

DOTED LINE $<, >$

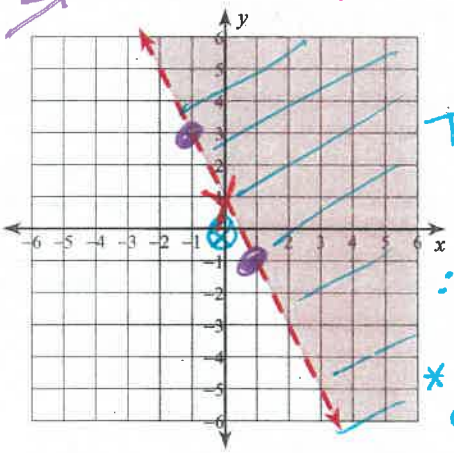
STEP II

GRAPH THE LINE

STEP III Use T(0,0) To DECIDE what SIDE TO SHADE

3) $y > -2x + 1$ $M=\frac{-2}{1}$ $B=1$

DOTED



$T(0,0)$

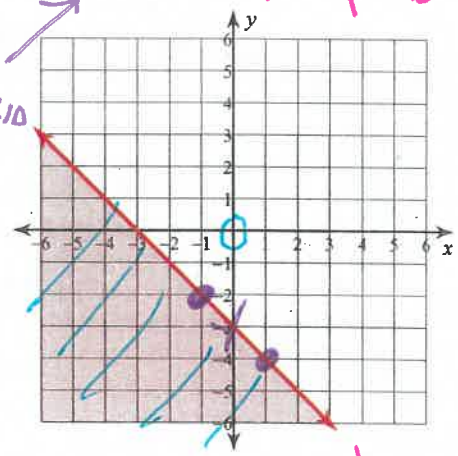
$0 > 1$ (F)

$\therefore$ (0,0) is NOT A SOLUTION

* shade the other side

4) $y \leq -x - 3$ $m=\frac{-1}{1}$ $B=-3$

SOLID

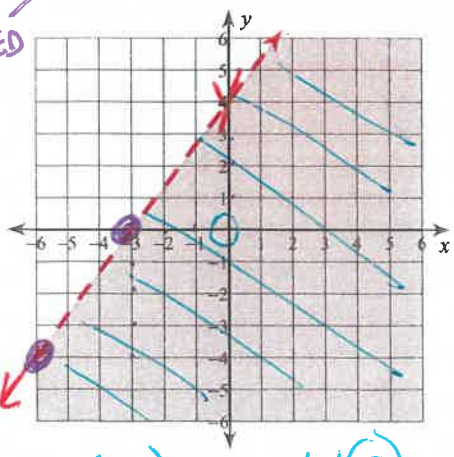


$T(0,0)$

$0 < -3$ (F)

5) $y < \frac{4}{3}x + 4$ $m=\frac{4}{3}$ $B=4$

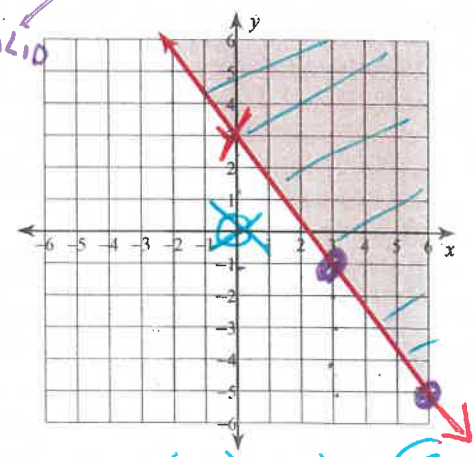
DOTED



$T(0,0)$ $0 < 4$ (T)

6) $y \geq -\frac{4}{3}x + 3$ $M=\frac{-4}{3}$ $B=3$

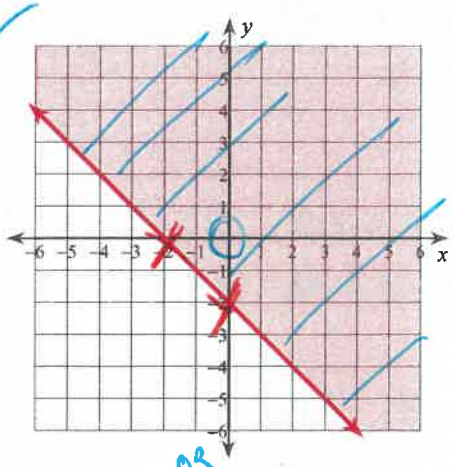
SOLID



$T(0,0)$ $0 \geq 3$ (F)

SECTION 6.7b: Sketch the graph (use intercept method) of each linear inequality. Show a test point for each equation.

7) $x + y \geq -2$



GRAPH W/ INTERCEPTS

X INT: $x = -2$

Y INT $y = -2$

T(0,0) $0 \geq -2$ (T)

OR

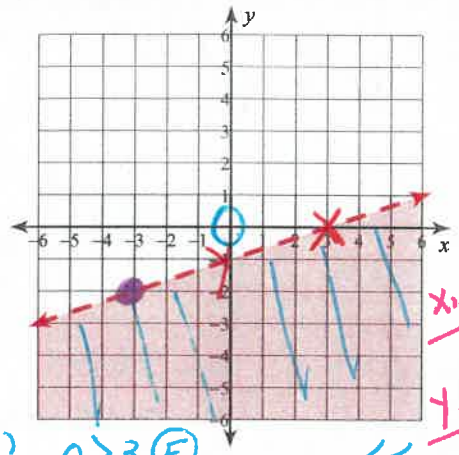
PUT INTO S/I

$x + y \geq -2$

$-x \quad -x$

$y \geq -x - 2$

8) $x - 3y > 3$



OPTION 1

Graph WITH INTERCEPTS

X INT $x = 3$

Y INT $-3y = 3$

$y = -1$

T(0,0) $0 > 3$ (F)

INEQUALITY RULE: WHEN YOU MULTIPLY THE VARIABLE BY A NEGATIVE # → SWITCH SYMBOL

OPTION 2 PUT INTO $y = mx + b$

$x - 3y > 3$

$-x \quad -x$

$\frac{-3y}{-3} > \frac{-x + 3}{-3}$

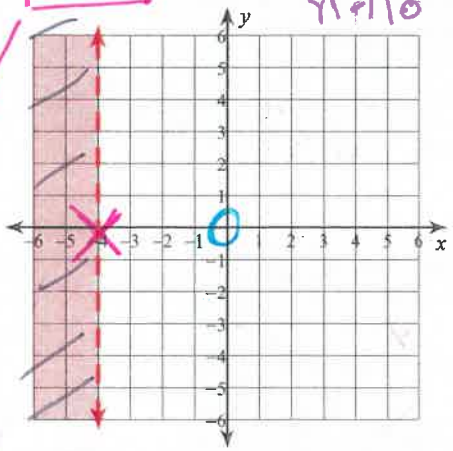
$y < \frac{1}{3}x - 1$

Now T(0,0)

$0 < -1$ (F)

9) $x < -4$

x	-4	-4	-4
y	0	1	

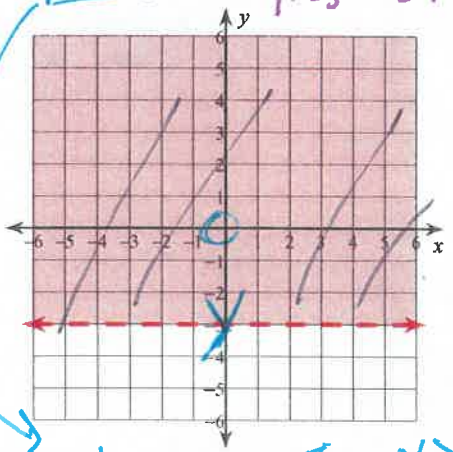


VLINE – GRAPH USING ANY METHOD

T(0,0) $0 < -4$ (F)

10) $y > -3$

x	-1	0	1
y	-3	-3	-3



HLINE – TIP: $y > 0x - 3$

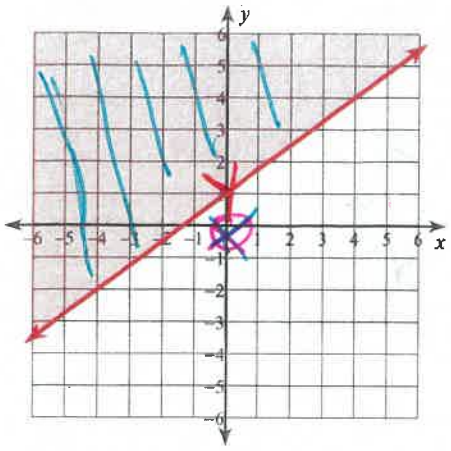
T(0,0) $0 > -3$ (T)

SECTION 6.7c: Sketch the graph of each linear inequality. Show a test point for each equation.

11) $y \geq \frac{3}{4}x + 1$ ← SOLID

T(0,0)

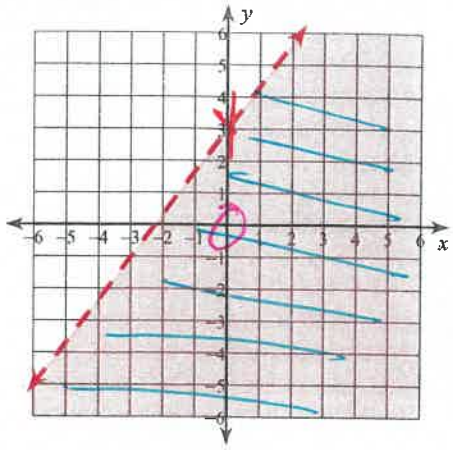
$0 \geq 1$ (F)



12) $y < \frac{4}{3}x + 3$ ← DOTTED

T(0,0)

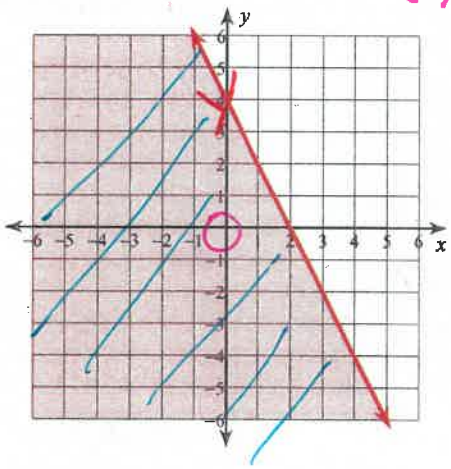
$0 < 3$ (T)



13) $y \leq -2x + 4$ ← SOLID

T(0,0)

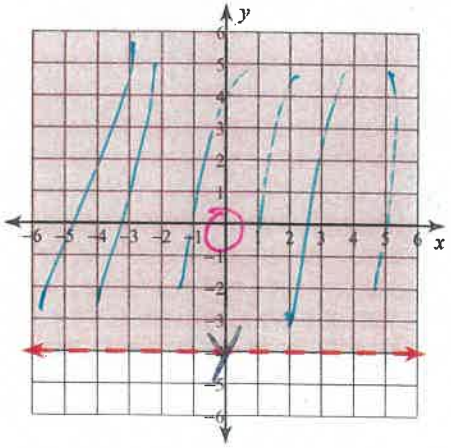
$0 \leq 4$ (T)



14) $y > -4$ ← DOTTED → HLINE

T(0,0)

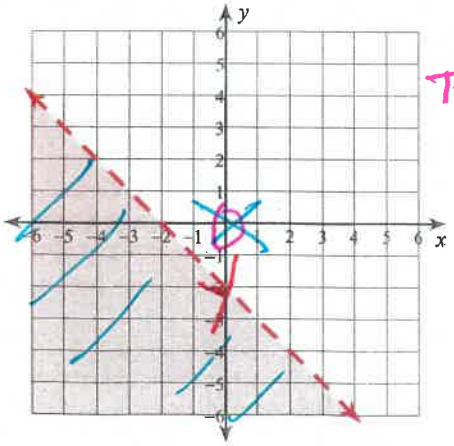
$0 > -4$ (T)



15) $y < -x - 2$ ← DOTTED

T(0,0)

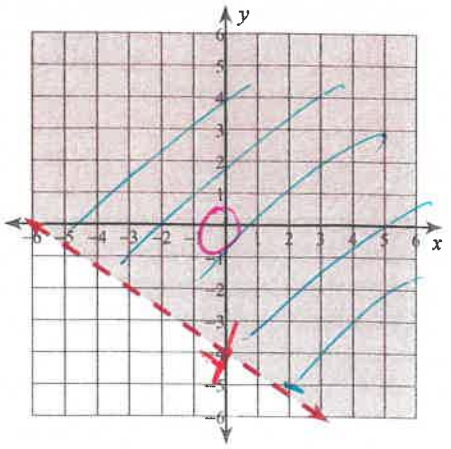
$0 < -2$ (F)



16) $y > -\frac{2}{3}x - 4$ ← DOTTED

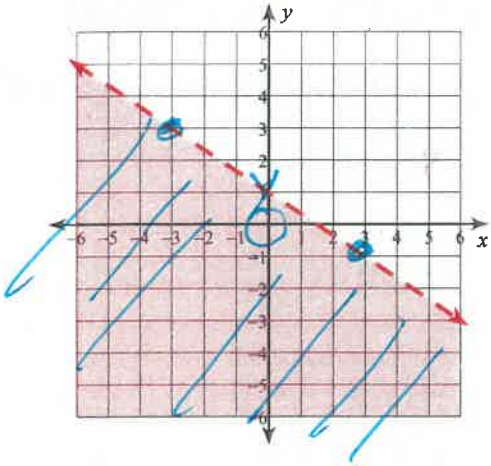
T(0,0)

$0 > -4$ (T)



SECTION 6.7d: Sketch the graph of each linear inequality. Show a test point.

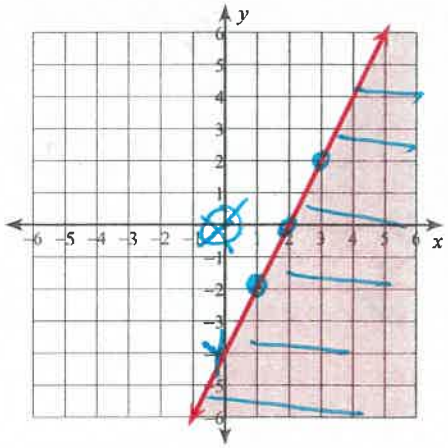
17) $y < -\frac{2}{3}x + 1$ DOTTED



T(0,0)

0 < 1 (T)

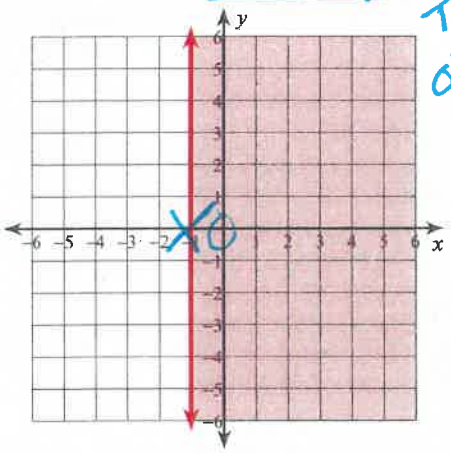
18) $y \leq 2x - 4$



T(0,0)

0 ≤ -4 (F)

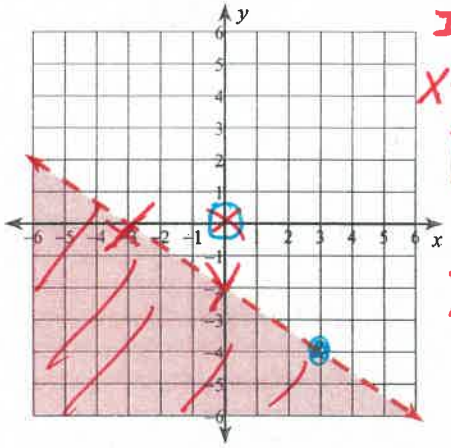
19) $x \geq -1$ SOLID — VLINE



T(0,0)

0 > -1 (T)

20) $2x + 3y < -6$ → (1) Graph w/ INTERCEPTS



x: $2x = -6$

$x = -3$

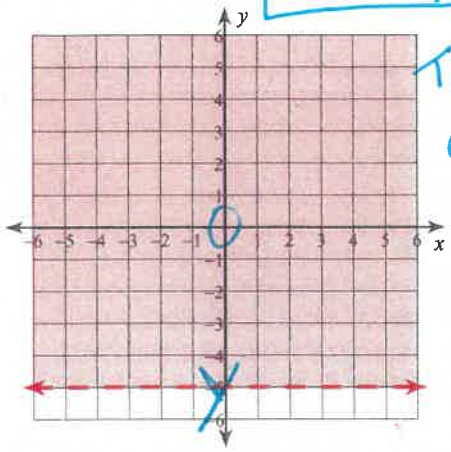
y: $3y = -6$

$y = -2$

T(0,0)

0 < -6 (F)

21) $y > -5$ DOTTED — HLINE



T(0,0)

0 > -5 (T)

(2) PUT INTO S/I

$2x + 3y < -6$

$-2x \quad\quad -2x$

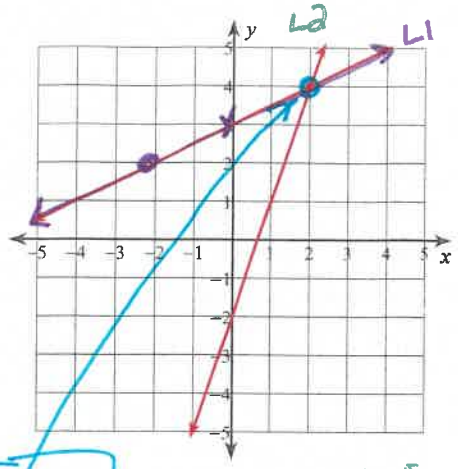
$\frac{3y}{3} < \frac{-2x}{3} - \frac{6}{3}$

$y < -\frac{2}{3}x - 2$

SECTION 7.1a: Solve each system by graphing; identify the solution; and show a calculator check.

22) $y = \frac{1}{2}x + 3$ (L1)

$y = 3x - 2$ (L2)

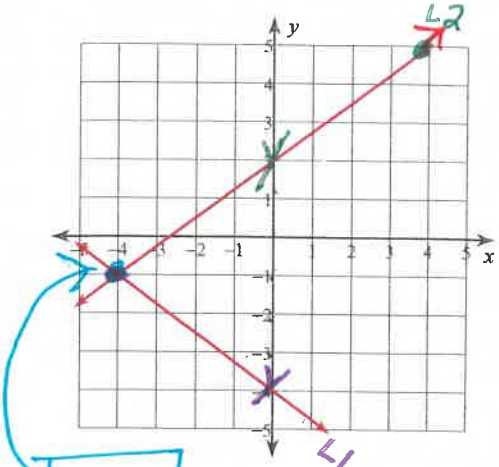


(2, 4) → Check solution in BOTH orig eq's.

L1: $4 = \frac{1}{2}(2) + 3$, $4 = 4$ ✓ | L2: $4 = 3(2) - 2$, $4 = 4$ ✓

23) $y = -\frac{3}{4}x - 4$ (L1) C: $-4 = -4$ ✓

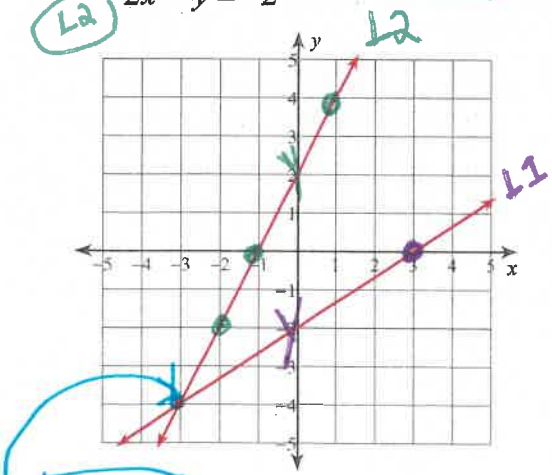
$y = \frac{3}{4}x + 2$ (L2) C: $2 = 2$ ✓



(−4, −1)

24) $2x - 3y = 6$ (L1) C: $6 = 6$ ✓

$2x - y = -2$ (L2) → C: $-2 = -2$ ✓



(−3, −4)

25) YOUR NOTES:

L1 $2x - 3y = 6$

$-2x \quad -2x$

$\frac{-3y}{-3} = \frac{-2x}{-3} + \frac{6}{-3}$

$y = \frac{2}{3}x - 2$

L2 $2x - y = -2$

$-2x \quad -2x$

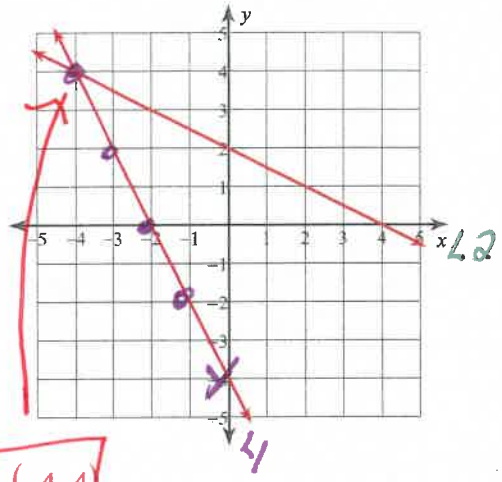
$\frac{-1y}{-1} = \frac{-2x}{-1} - \frac{2}{-1}$

$y = 2x + 2$

SECTION 7.1b: Solve each system by graphing; identify the solution; and show a calculator check.

26) L1 $y = -2x - 4$ C: $-4 = -4$ ✓

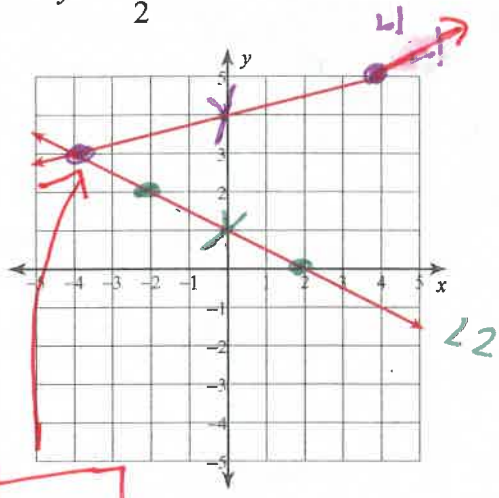
L2 $y = -\frac{1}{2}x + 2$ C: $2 = 2$ ✓



(–4, 4)

27) L1 $y = \frac{1}{4}x + 4$ C: $4 = 4$ ✓

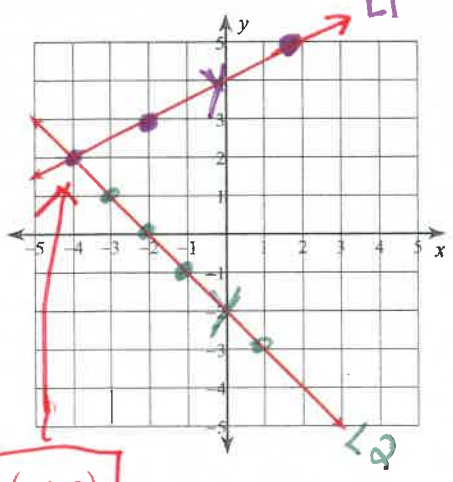
L2 $y = -\frac{1}{2}x + 1$ C: $1 = 1$ ✓



(–4, 3)

28) L1 $y = \frac{1}{2}x + 4$ C: $4 = 4$ ✓

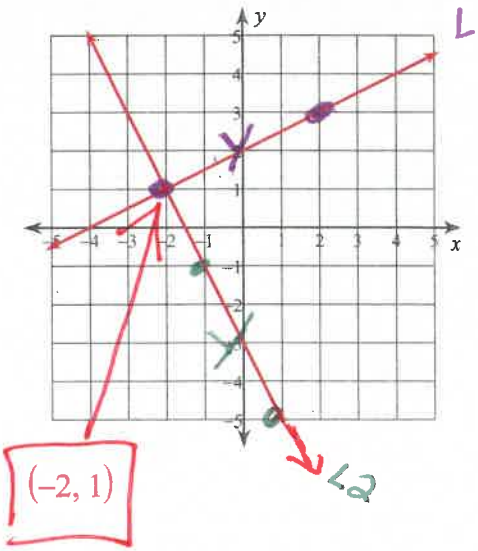
L2 $y = -x - 2$ C: $-2 = -2$



(–4, 2)

29) L1 $y = \frac{1}{2}x + 2$ C: $2 = 2$

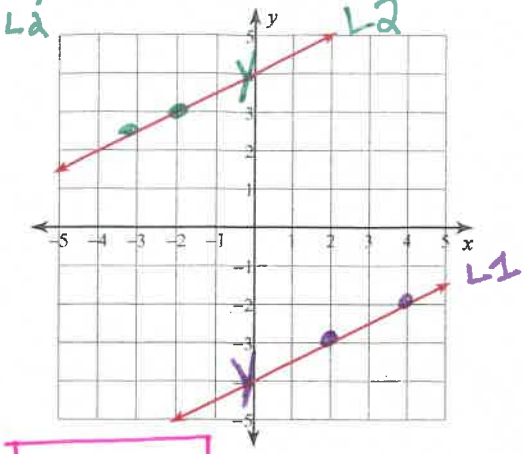
L2 $y = -2x - 3$ C: $-3 = -3$ ✓



(–2, 1)

SECTION 7.5a: Solve each system by graphing; identify the solution; and if possible check.

30) L1 $-x = -8 - 2y$
L2 $-4y = -2x - 16$



No solution ← SOLUTION

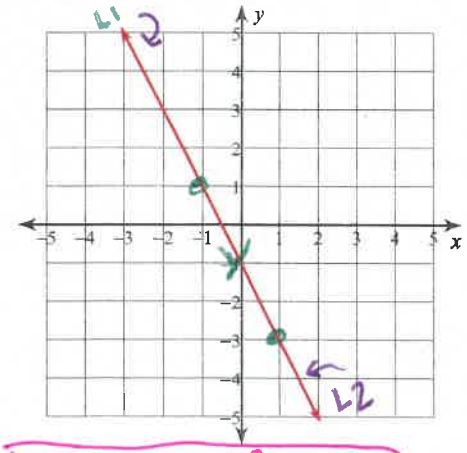
31) YOUR NOTES:

SPECIAL CASE // lines have the same slope + do NOT INTERSECT

L1 $-x = -8 - 2y$
$+8 \quad +8$
$\frac{-2y}{-2} = \frac{-x+8}{-2}$
$y = \frac{1}{2}x - 4$

L2 $\frac{-4y}{-4} = \frac{-2x-16}{-4}$
$y = \frac{1}{2}x + 4$

32) L1 $2y = -2 - 4x$
L2 $3y + 6x = -3$



Infinite ~~number of~~ solutions ← SOLUTION

33) YOUR NOTES:

SPECIAL CASE The lines are the same, THEREFORE EVERY POINT ON THE LINE IS A SOLUTION.

L1 $\frac{2y}{2} = \frac{-2}{2} - \frac{4x}{2}$
$y = -2x - 1$

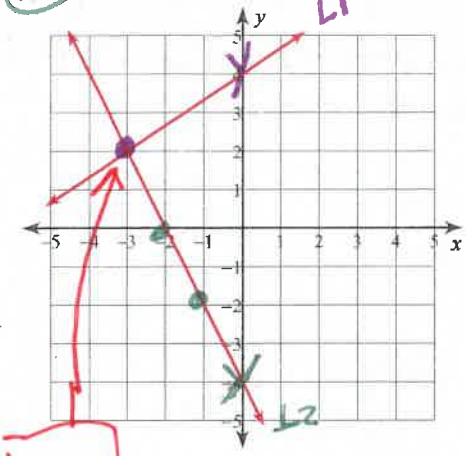
L2 $3y + 6x = -3$
$-6x \quad -6x$
$\frac{3y}{3} = \frac{-6x-3}{3}$
$y = -2x - 1$

SECTION 7.5b: Solve each system by graphing; identify the solution; and if possible check.

34) $2x - 3y = -12$
$2x + y = -4$

L1 L2

C: $-12 = -12$ ✓
C: $-4 = -4$ ✓



(–3, 2)

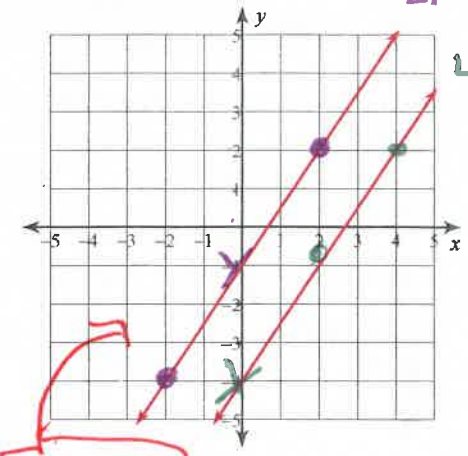
L1 $2x - 3y = -12$
$-2x \quad -2x$
$-3y = -2x - 12$
$\frac{-3y}{-3} = \frac{-2x}{-3} - \frac{12}{-3}$
$y = \frac{2}{3}x + 4$

L2 $2x + y = -4$
$-2x \quad -2x$
$y = -2x - 4$

35) $3x - 2y = 2$
$3x - 2y = 8$

No check needed

L1 L2



No solution

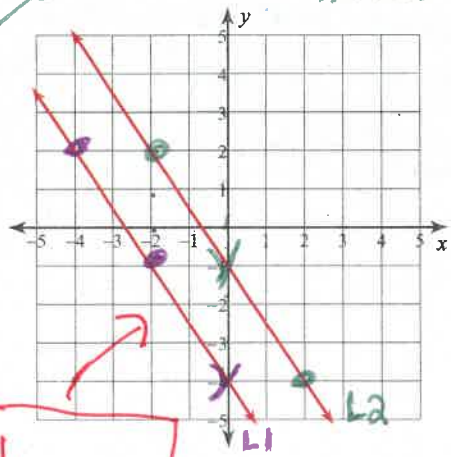
L1 $3x - 2y = 2$
$-3x \quad -3x$
$-2y = -3x + 2$
$\frac{-2y}{-2} = \frac{-3x}{-2} + \frac{2}{-2}$
$y = \frac{3}{2}x - 1$

L2 $3x - 2y = 8$
$-3x \quad -3x$
$-2y = -3x + 8$
$\frac{-2y}{-2} = \frac{-3x}{-2} + \frac{8}{-2}$
$y = \frac{3}{2}x - 4$

36) $3x + 2y = -8$
$3x + 2y = -2$

No check needed

L1 L2



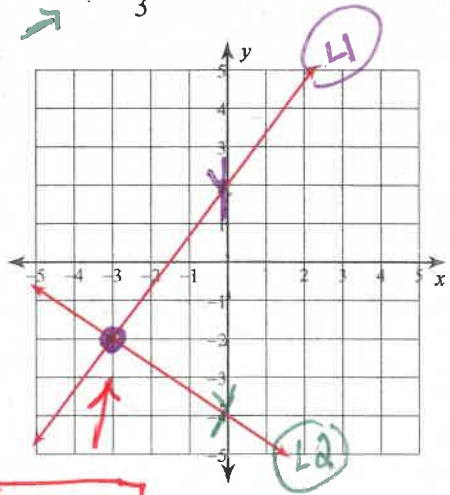
No solution

L1 $3x + 2y = -8$
$-3x \quad -3x$
$\frac{2y}{2} = \frac{-3x}{2} - \frac{8}{2}$
$y = -\frac{3}{2}x - 4$

L2 $3x + 2y = -2$
$-3x \quad -3x$
$\frac{2y}{2} = \frac{-3x}{2} - \frac{2}{2}$
$y = -\frac{3}{2}x - 1$

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

L1 L2



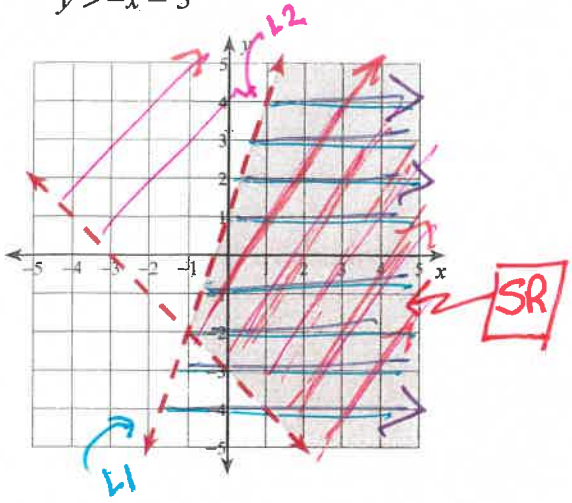
(–3, –2)

C: $2 = 2$ ✓
C: $-4 = -4$ ✓

SECTION 7.6a: Sketch the solution to each system of inequalities. Show a test point for each equation.

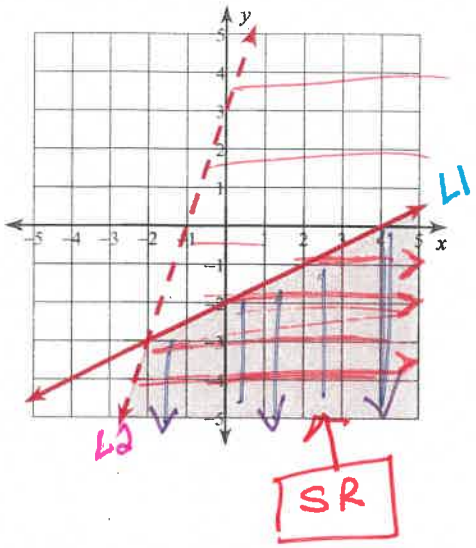
38) $y < 3x + 1$
$y > -x - 3$

L1 T(0,0) $0 < 1$ T
L2 T(0,0) $0 > -3$ T



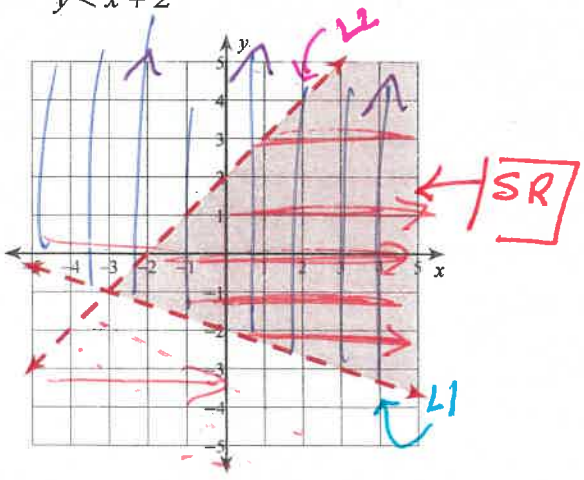
39) $y \leq \frac{1}{2}x - 2$
$y < 3x + 3$

L1 T(0,0) $0 \leq -2$ F
L2 T(0,0) $0 < 3$ T



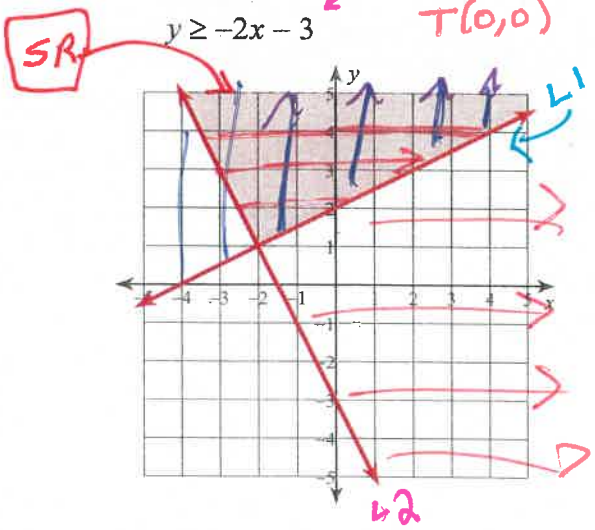
40) $y > -\frac{1}{3}x - 2$
$y < x + 2$

L1 T(0,0) $0 > -2$ T
L2 T(0,0) $0 < 2$ T



41) $y \geq \frac{1}{2}x + 2$
$y \geq -2x - 3$

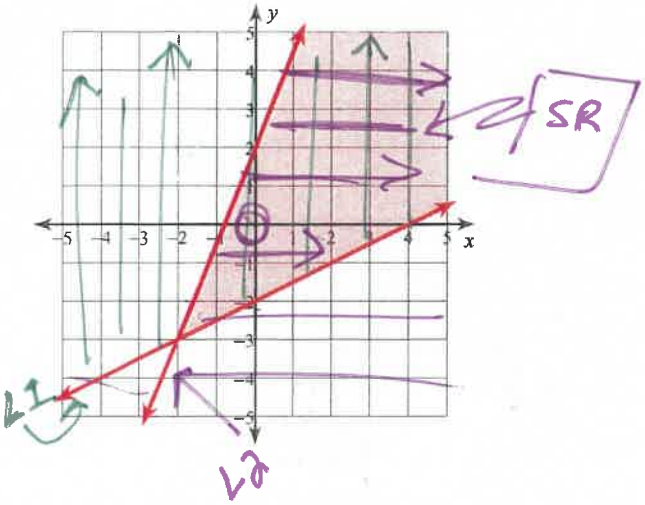
L1 T(0,0) $0 \geq 2$ F
L2 T(0,0) $0 \geq -3$ T



SECTION 7.6b: Sketch the solution to each system of inequalities. Show a test point for each equation.

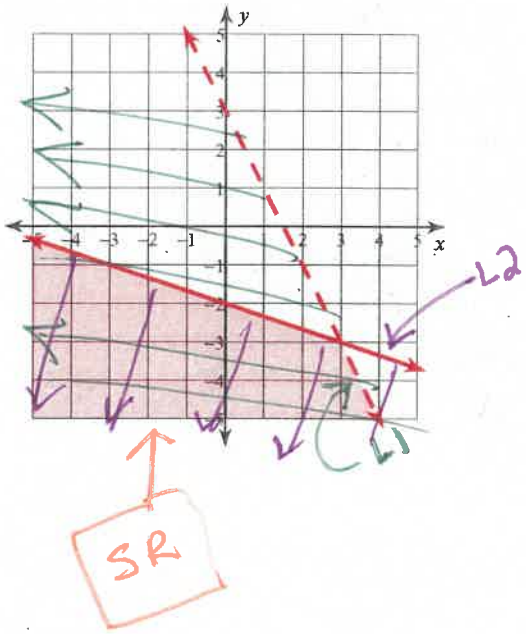
42) L1 $y \geq \frac{1}{2}x - 2$ T(0,0) $0 \geq -2$ (T)

$y \leq \frac{5}{2}x + 2$ T(0,0) $0 \leq 2$ (T)



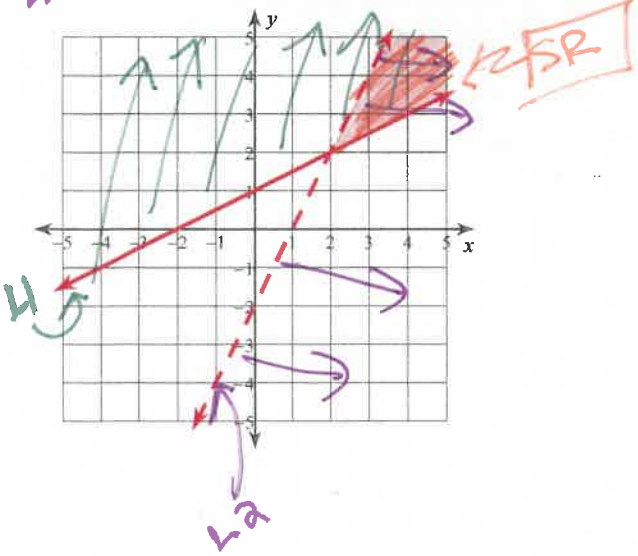
43) L1 $y < -2x + 3$ T(0,0) $0 < 3$ (T)

$y \leq -\frac{1}{3}x - 2$ T(0,0) $0 \leq -2$ (F)



44) L1 $y \geq \frac{1}{2}x + 1$ T(0,0) $0 \geq 1$ (F)

L2 $y < 2x - 2$ T(0,0) $0 < -2$ (F)



45) L1 $y \geq -\frac{4}{3}x - 3$ T(0,0) $0 \geq -3$ (T)

L2 $y < \frac{2}{3}x + 3$ T(0,0) $0 < 3$ (T)