(10-15-13) PARTIAL QUIZ 5 SOLUTIONS

(4.) $(1,-2)$ YES

$3y-2x=-8$

$3\cdot(-2)-2\cdot 1=-8$

$-6-2=-8$

$-8=-8$ YES (1 PT)

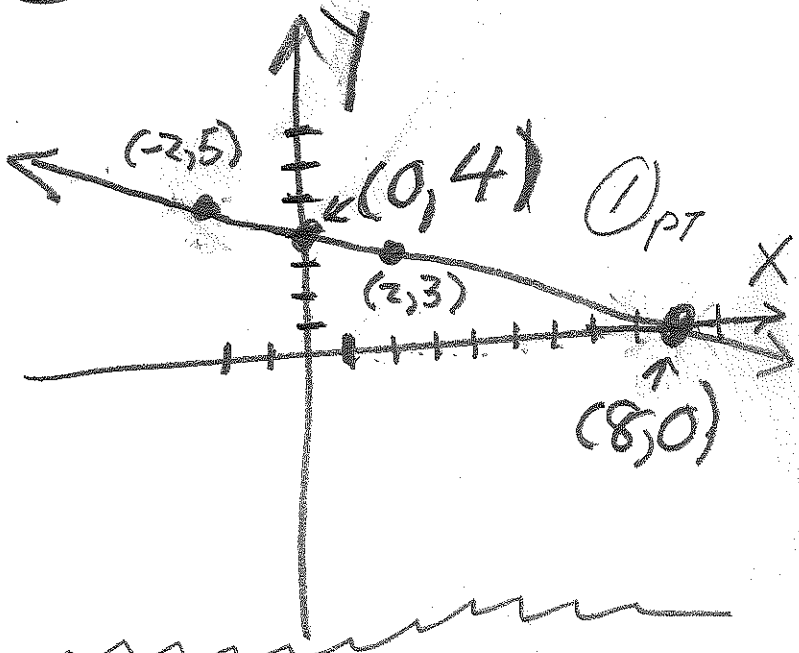
(1 PT)

ALT: $x=1$

$3y-2=-8 \Rightarrow 3y=-6$

$y=-2$

(8.) GRAPH:



(8.) $x+2y=8$

$y=0$:

$x+2\cdot 0=8$

$x=8$

X-INT $=(8,0)$ (1 PT)

$x=0$:

$0+2y=8$

$2y=8$

$y=4$

Y-INT $=(0,4)$ (1 PT)

YOU CAN ALSO GRAPH WITH A TABLE:

$x+2y=8$

$-x \quad -x$

$2y=-x+8$

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

X	Y	(X,Y)
0	$0+4=4$	(0,4)
2	$-\frac{2}{2}+4=-1+4=3$	(2,3)
-2	$-\frac{(-2)}{2}+4=1+4=5$	(-2,5)

10-15-13 (1

2.7 SUMMARY

(1) given m and (x_1, y_1)

FIND $y - y_1 = m \cdot (x - x_1)$

(2.) Given $y - y_1 = m \cdot (x - x_1)$

FIND $y = mx + b$

(3.) Given $y - y_1 = m(x - x_1)$

GRAPH it.

BBC-style

6-15-13 GRID(S) Intro (1

3.7

Examples

Problems

1 ⟶ (3), (15)

2 ⟶ (21)

3 ⟶ 27

4 ⟶ 39

5 ⟶ 49.

6 ⟶ 93

7 ⟶ read, 57

10—15—13 (1′

3.7

$y - y_1 = m(x - x_1)$

POINT – SLOPE FORM ⟹ (Math 55)

(13.) $m = 3$; $(1, 6) = (x_1, y_1)$
(m = SLOPE; (1, 6) = POINT)

$y - 6 = 3 \cdot (x - 1)$ ⟹ answer

(15.) $m = \frac{3}{5}$; $(2, 8) = (x_1, y_1)$

$y - 8 = \frac{3}{5} \cdot (x - 2)$ ⟹ answer

(21.) $m = -\frac{5}{4} = \frac{-5}{4}$; $(-2, 6)$

$y - 6 = -\frac{5}{4} \cdot (x - (-2))$

$y - 6 = -\frac{5}{4}(x + 2)$ ⟹ answer

(27.) $m = 4$; $(3, 5)$

(WANT SLOPE-INTERCEPT FORM.)

PT.-SLOPE FORM ⟶ $y - 5 = 4 \cdot (x - 3)$

$y - 5 = 4x - 12$

$y = mx + b$ GOAL

(27.) $y - 5 = 4x - 12$

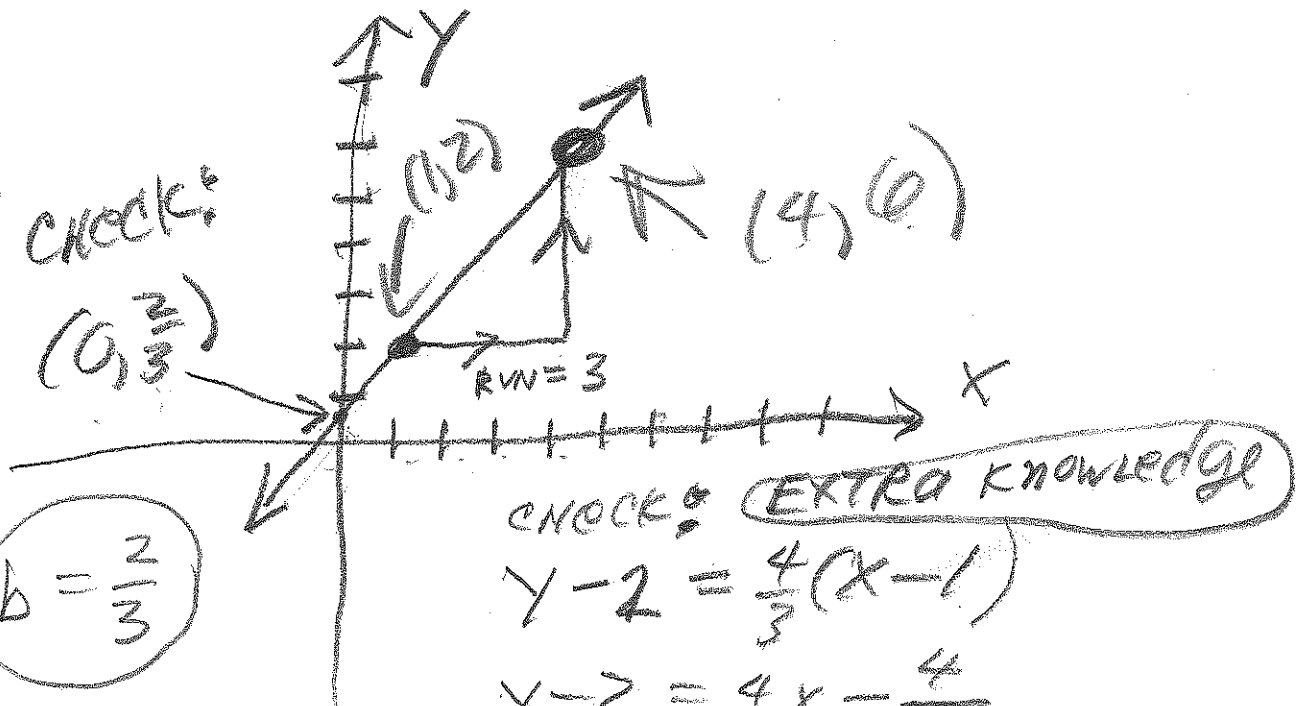
$+5 \qquad +5$

$y = 4x - 7$ → y-INT = $(0, -7)$

$m = 4$; $b = -7$ → GOAL: slope-intercept form

(39.) $m = \frac{4}{3} = \frac{\text{RISE}}{\text{RUN}}$

$(x_1, y_1) = (1, 2)$



$b = \frac{2}{3}$

CHECK: (EXTRA KNOWLEDGE)

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

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

$y = \boxed{\frac{4}{3}x + \frac{2}{3}}$

3.7

49. $y - y_1 = m(x - x_1)$ ← START

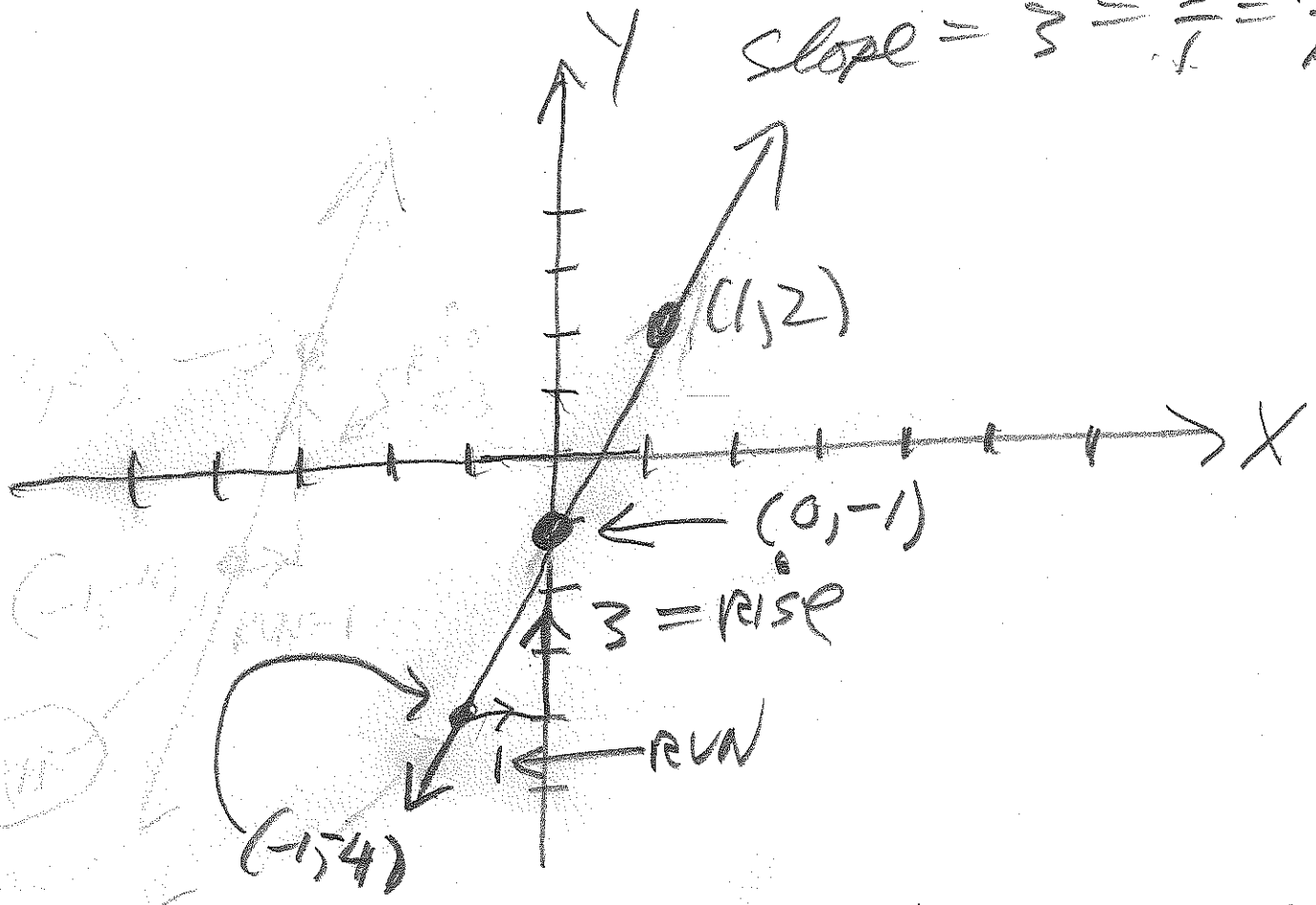
$y + 4 = 3 \cdot (x + 1)$

$y - (-4) = 3 \cdot (x - (-1))$

GRAPH →

$(x_1, y_1) = (-1, -4)$ careful!

slope $= 3 = \frac{3}{1} = \frac{\text{rise}}{\text{run}}$



(43.) $y - 5 = \frac{1}{3}(x - 2)$ $\}$ $(x_1, y_1) = (2, 5)$

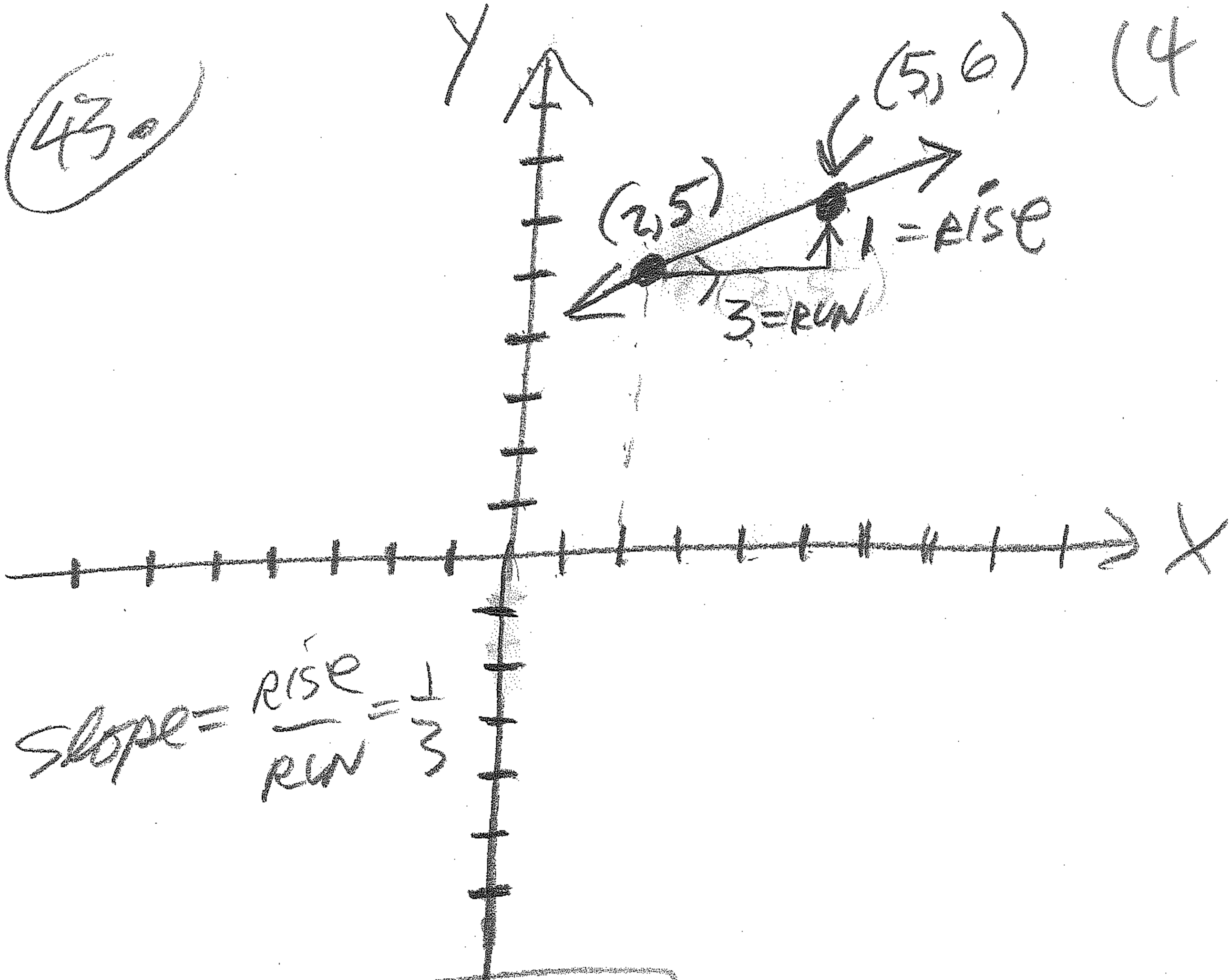
$y - y_1 = m(x - x_1)$ $\}$

GRAPH it

$m = \frac{1}{3} = \frac{\text{rise}}{\text{run}}$

(43.)

(4



$\text{slope} = \frac{\text{rise}}{\text{run}} = \frac{1}{3}$

$$y - 5 = \frac{1}{3}(x - 2)$$

$$y - y_1 = m(x - x_1)$$

$$(x_1, y_1) = (2, 5)$$

10-15-13 Intro 4!

2.1

Examples problems

1 → Read

2 → B

3 → 30

4 → 26

5 → 41

2.1 SUMMARY

(1.) GRAPH 2 lines and find where the cross (intersect)

(2.) GOOD graphing practice

(3) 3 TYPES problems

(A) 2 lines cross (easy)

(B) 2 parallel lines

(C) same line (graph it)

easy

2.1

(13) $y = -2x + 5$ line 1 (l_1)

$x + y = 4$ line 2 (l_2)

line 1 (l_1)

x	y	(x, y)	work
0	5	(0, 5)	$y = 0 + 5$
2	1	(2, 1)	$y = -2 \cdot 2 + 5$ $= -4 + 5$ $= 1$

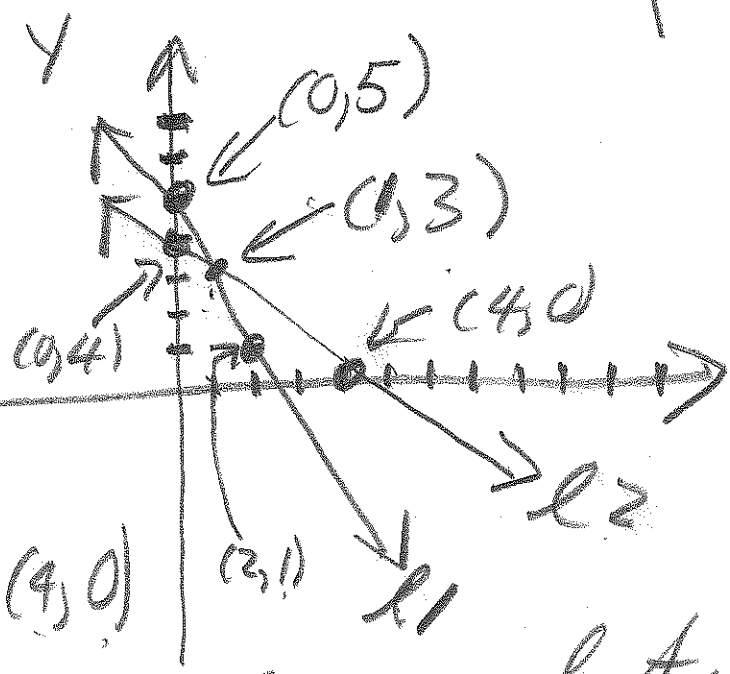
line 2

$x + y = 4$

$0 + y = 4$ and $x + 0 = 4$

line 2

(0, 4) and (4, 0)



line 2 (l_2)

x	y
0	4
4	0

(1, 3) = solution

= intersection

2.1
30

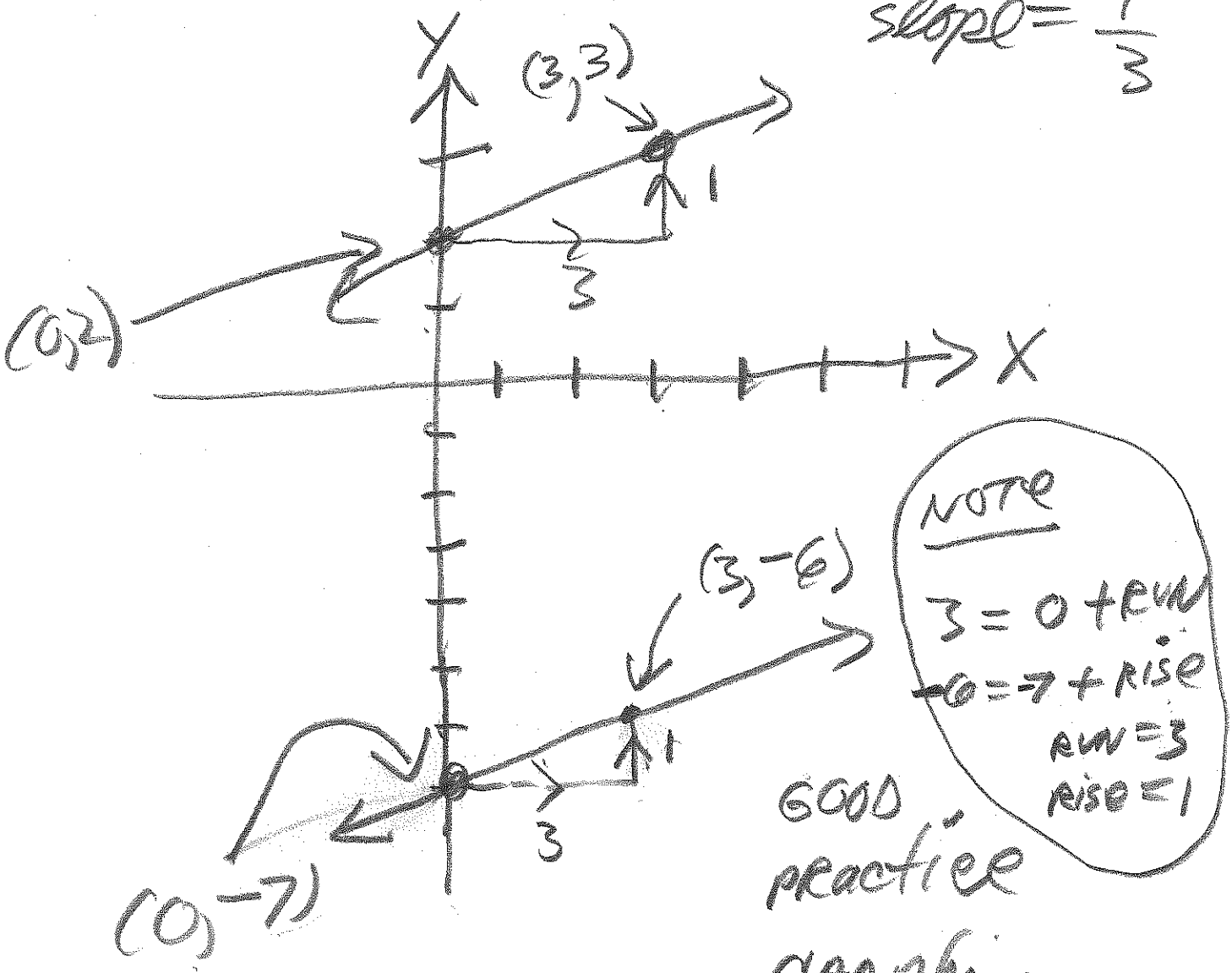
$y = mx + b$

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

$y = \frac{1}{3}x - 7$

NO INTERSECTION
SAME SLOPES!

slope $= \frac{1}{3}$



NOTE

3 = 0 + RUN

0 = 7 + RISE

RUN = 3

RISE = 1

GOOD practice graphing

2.1

(20)

$x + 3y = 6$ (l1)

$4x + 12y = 24$ (l2)

l1

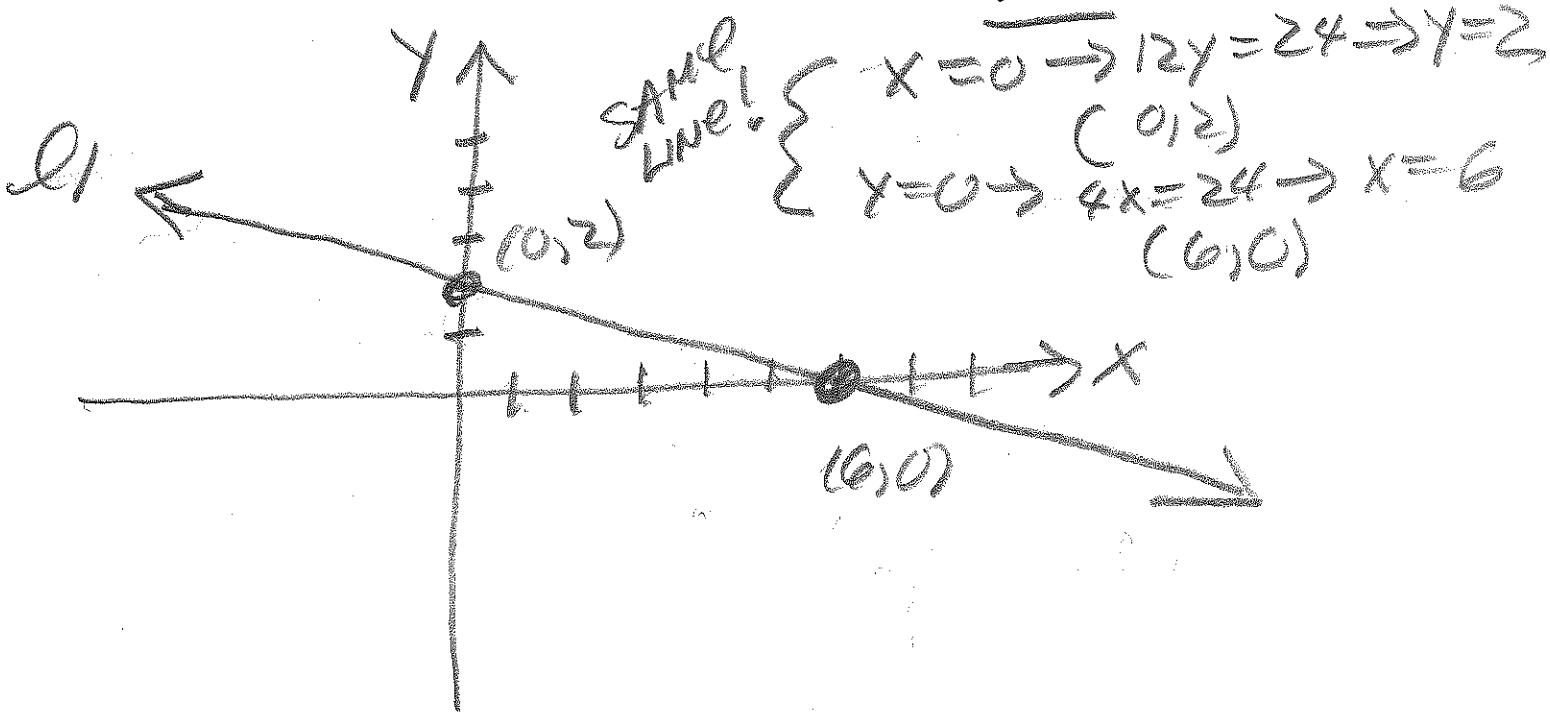
$x = 0 \Rightarrow 0 + 3y = 6 \Rightarrow y = 2$

$(0, 2)$

$y = 0 \Rightarrow x + 0 = 6 \Rightarrow x = 6$

$(6, 0)$

l2



2.1 (41)

ℓ_1 ℓ_2

$x - 4 = 6 - x$

* Note

$x - 4 = 6 - x$

$+x \quad +x$

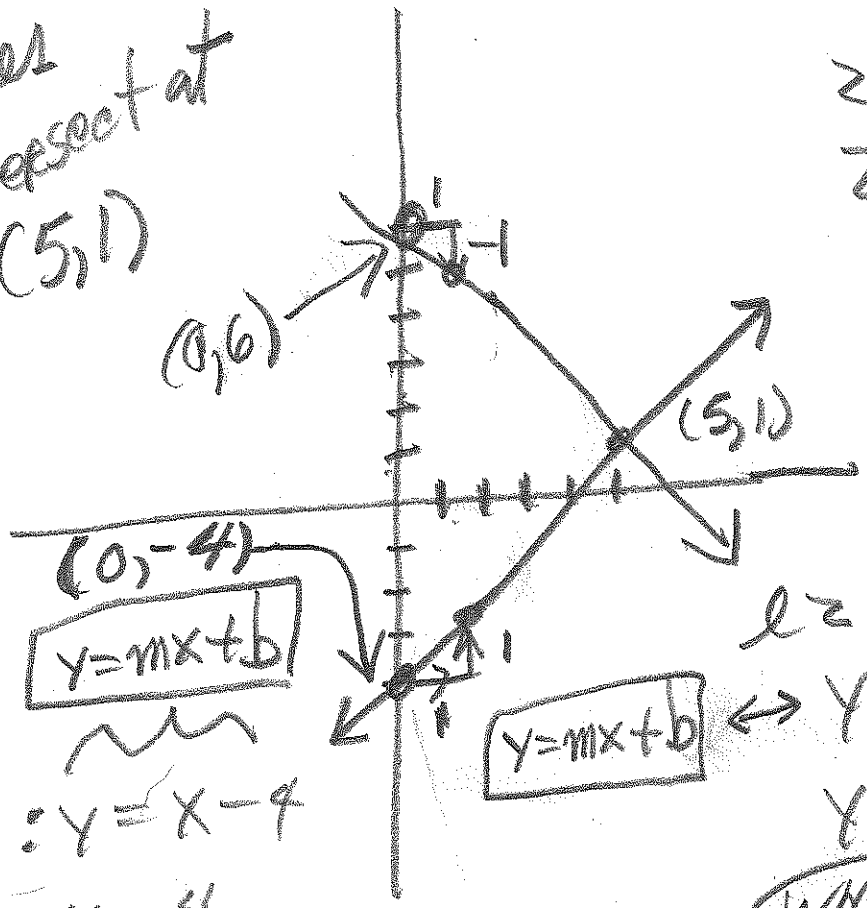
$2x - 4 = 6$

$2x = 10$

$x = 5$

* lines intersect at (5, 1)

and $y = 5 - 4 = 1$ ℓ_1



$y = mx + b$

$\ell_1 : y = x - 4$

$y = 1 \cdot x - 4$

y-intercept = (0, -4)

since $y = 0$

when $x = 0$

$y = 0 - 4$

$x = -4$

slope $= 1 = \frac{1}{1} = m = \frac{\text{RISE}}{\text{RUN}}$

$\ell_2 : y = 6 - x$

$y = mx + b \leftrightarrow y = -x + 6$

$y = -1 \cdot x + 6$

when $x = 0$, $y = 6$

y-INT. = (0, 6)

slope $= -1 = m$

$m = \frac{-1}{1} = \frac{\text{RISE}}{\text{RUN}}$

(0)

7.2 GRAP substitution

EX		problem
1	⟶	5, 7
2	⟶	13
3	⟶	19
4	⟶	read
5	⟶	43 (QUIZ 6)

7.3 Elimination

EX		problem
1	⟶	5, 7, 13
2	⟶	read
3	⟶	21
4	⟶	read

} on QUIZ 6

7.3

Ex

Producer

5 → read, 5

6 → read

7 → read, 37

7.2

5.

$x + y = 9$ (A)

$y = x + 1$ (B)

substitute B into A

(B): $y = x + 1$

(A): $x + y = 9$

new (A): $x + (x + 1) = 9$

AFTER substitution

$x + (x + 1) = 9$

$x + x + 1 = 9$

$2x + 1 = 9$

$-1 \quad -1$

$2x = 8$

3.

(5) $2x = 8$

$x = 4$

GO BACK (B.)

$y = x + 1$

$y = 4 + 1$

$y = 5$

solution = (x, y)

$= (4, 5)$

7. $x = y + 1$ (A)

$x + 2y = 4$ (B)

substitute (A) into (B)

(B): $x + 2y = 4$

$(y + 1) + 2y = 4$

$y + 1 + 2y = 4$

$3y + 1 = 4$

$-1 \quad -1$

$3y = 3$

$y = 1$

Go Back to (A):

(5.)

$$x = y + 1$$

$$y = 1,$$

$$x = 1 + 1$$

$$x = 2$$

solution = (2, 1)

(B.) $x = y - 5$ (A.)

$2x + 5y = 4$ (B.)

sub. (A.) into (B.):

$2 \cdot x + 5 \cdot y = 4$

$2 \cdot (y - 5) + 5y = 4$

$2y - 10 + 5y = 4$ distributed

(6.)

(13) $7y - 10 = 4$

$+10 \quad +10$

$7y = 14$

$y = 2$

GO BACK TO (A):

$x = y - 5$

$x = 2 - 5$

$x = -3$

solution = $(-3, 2)$

(19.) $x - y = 5$ (A.)

$x + 2y = 7$ (B.)

7.

(A): $x - y = 5$

$+y \quad +y$

new (A): $x = y + 5$

sub. into old (B.)

(B.) $x + 2y = 7$

$y + 5 + 2y = 7$

$3y + 5 = 7$

$3y = 2$

$\frac{3y}{3} = +\frac{2}{3}$

$y = +\frac{2}{3}$

Go to (A):

$$x - y = 5$$

new (A):

$$x = y + 5$$

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

$\frac{2}{3} + 5 = 5\frac{2}{3}$ mixed fraction

math 10A $5\frac{2}{3} = \frac{17}{3}$

$5 \cdot 3 + 2 = 15 + 2 = 17$

math 65 style

$$\frac{2}{3} + 5 = \frac{2}{3} + \frac{5}{1} = \frac{2}{3} \cdot \frac{1}{1} + \frac{5}{1} \cdot \frac{3}{3}$$

LCD = 3

$$= \frac{2}{3} + \frac{15}{3} = \frac{17}{3}$$

(19) solution = $(\frac{17}{3}, \frac{2}{3})$ (9.)

(17.)

$s + t = -5$ (A)

$s - t = 3$ (B)

(A): $s + t = -5$

$-t \quad -t$

now (A): $s = -t - 5$

sub. into B: $s - t = 3$

$-t - 5 - t = 3$

$-2t - 5 = 3$

$+5 \quad +5$

$-2t = 8$

(10.)

$$-2t = 8$$

$$\frac{-2t}{-2} = \frac{8}{-2}$$

$$\boxed{t = -4}$$

Go Back to now (A):

$$s + t = -5 \quad (A)$$

now (A):

$$s = -t - 5$$
$$s = -(t) - 5$$
$$s = -(-4) - 5$$
$$s = 4 - 5$$
$$s = -1$$

NOTE:
$-x = -(x)$

$$(s, t) = (-1, -4)$$

7.3

(11.)

Elimination

(5.)

$x - y = 3$ (A)

$x + y = 13$ (B)

$x - y = 3$ (A)

$x + y = 13$ (B)

(A)+(B) $2x + 0 = 16$

$-y + y = 0$

$2x = 16$

$\frac{2x}{2} = \frac{16}{2}$

$x = 8$

GO TO (A) OR (B) Flip a coin.

12.

A) $x - y = 3$

$\downarrow$

$8 - y = 3$

$-8 \qquad -8$

$-y = -5$

$\frac{-y}{-1} = \frac{-5}{-1}$

$y = 5$

B.) $x + y = 13$

$\downarrow$

$8 + y = 13$

$-8 \qquad -8$

$y = 5$

$(8, 5)$
= solution.