

Paper & Pencil Solutions

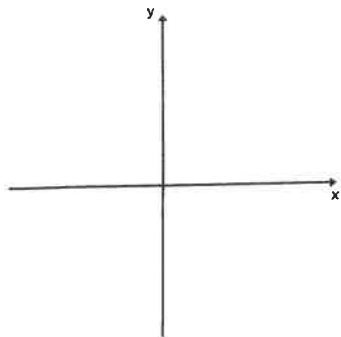
Name _____ Sketching Lines Practice Hour _____ Date: 8/9/23

Paper and Pencil Sketching of Lines (Point Slope Form) This is the ORIGINAL FORMAT of the Point Slope Form

This form CANNOT be graphed in function mode

Graph 1
 $y - 5 = 2(x - 3)$

Show work to find the intercepts here



Label implied point, x intercept, and y intercept

What is the implied point? _____ (be careful with signs!)

What is the slope? $m =$ _____

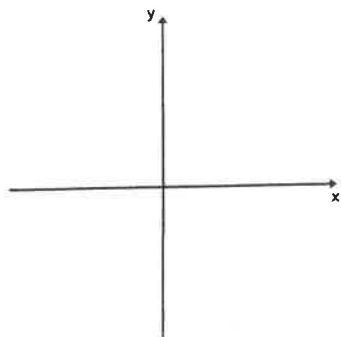
What is the y intercept? $(0, \text{_____})$ $b =$ _____

What is the x intercept? $(\text{____}, 0)$

Convert to slope intercept form _____

Graph 2
 $y + 4 = \frac{-3}{2}(x + 6)$

Show work to find the intercepts here



Label implied point, x intercept, and y intercept

What is the implied point? _____ (be careful with signs!)

What is the slope? $m =$ _____

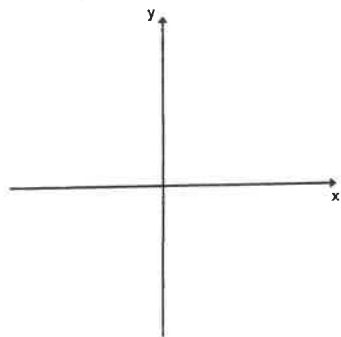
What is the y intercept? $(0, \text{_____})$ $b =$ _____

What is the x intercept? $(\text{____}, 0)$

Convert to slope intercept form _____

Graph 3
 $y = \frac{-1}{3}(x - 6)$

Show work to find the intercepts here



Label implied point, x intercept, and y intercept

What is the implied point? _____ (be careful with signs!)

What is the slope? $m =$ _____

What is the y intercept? $(0, \text{_____})$ $b =$ _____

What is the x intercept? $(\text{____}, 0)$

Convert to slope intercept form _____

Note:

$y = \frac{-1}{3}(x - 6)$ is also called X intercept form!

$$y - 5 = 2(x - 3)$$

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

Implied point (3, 5)

y-intercept

$$y - 5 = 2(0 - 3)$$

$$y - 5 = 2(-3)$$

$$y - 5 = -6$$

$$y = -1$$

$$b = -1$$

y-intercept (0, -1)

$$y = 2x - 1$$

slope intercept

x-intercept

$$y - 5 = 2(x - 3)$$

$$0 - 5 = 2(x - 3)$$

$$-5 = 2x - 6$$

$$+6 \qquad +6$$

$$1 = 2x$$

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

x-intercept

$$\left(\frac{1}{2}, 0\right)$$

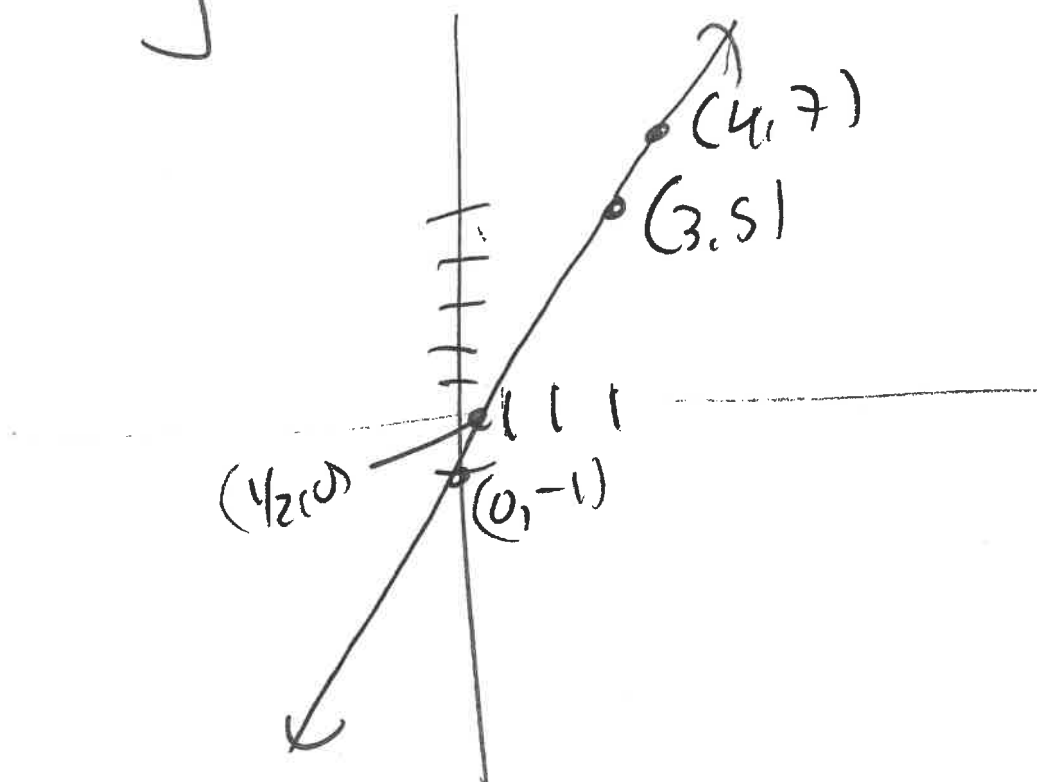
or

$$y = 2x - 1$$
$$0 = 2x - 1$$

$$1 = 2x$$

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

$$y = 2x - 1 \quad \text{Slope-intercept}$$



$$y - s = 2(x - 3) \quad \text{point slope}$$

$$y = 2(x - 3) + s \quad \text{modified point slope}$$

$$y + 4 = \frac{-3}{2}(x + 6)$$

implied point $(-6, -4)$

$$m = \frac{-3 \leftarrow \Delta y}{2 \leftarrow \Delta x}$$

y-intercept

$$y + 4 = \frac{-3}{2}(0 + 6)$$

$$y + 4 = \frac{-3}{2}(6)$$

$$y + 4 = -9$$

$$y = -13$$

$$\boxed{\begin{array}{l} \text{y-intercept} \\ (0, -13) \end{array}}$$

$$\boxed{y = \frac{-3}{2}x - 13}$$

Slope Intercept

x-intercept

$$y + 4 = \frac{-3}{2}(x + 6)$$

$$0 + 4 = \frac{-3}{2}(x + 6)$$

$$4 = \frac{-3}{2}x - 9$$

+9

$$13 = \frac{-3}{2}x$$

$$x = 13 \cdot \frac{2}{-3} = -\frac{26}{3}$$

x-intercept

$$\left(-\frac{26}{3}, 0\right)$$

$$(-8\bar{6}, 0)$$

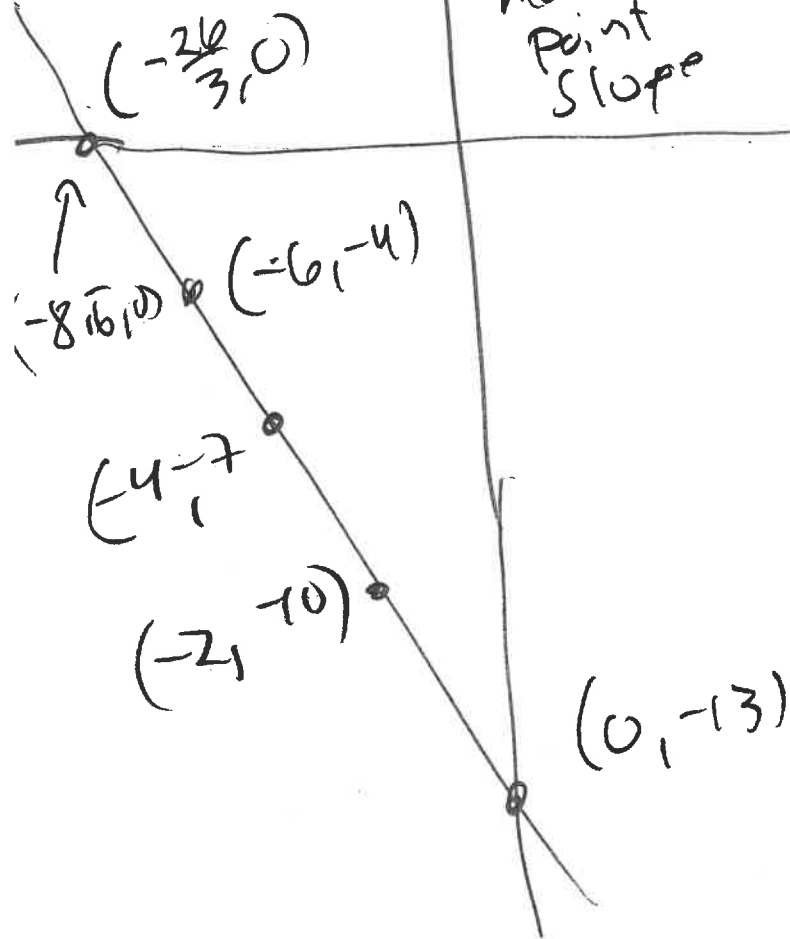
$$y + 4 = -\frac{3}{2}(x + 6) \text{ Point slope}$$

$$y = -\frac{3}{2}(x + 6) - 4$$

$$y = -\frac{3}{2}x - 13$$

slope intercept

modified
Point
slope



$$y = -\frac{1}{3}(x-6) \quad \text{x intercept form}$$

$$y - 0 = -\frac{1}{3}(x-6) \quad \text{point slope}$$

$$y = -\frac{1}{3}(x-6) + 0 \quad \text{modified point slope}$$

y intercept

$$y = -\frac{1}{3}(0-6)$$

$$y = -\frac{1}{3}(6)$$

$$y = 2$$

x intercept

$$0 = -\frac{1}{3}(x-6)$$

$$-3(0 = -\frac{1}{3}(x-6))$$

$$0 = (x-6)$$

$$x = 6$$

$$\text{y intercept} \\ (0, 2)$$

$$\text{x intercept} \\ (6, 0)$$

Slope

$$m = -\frac{1}{3} \quad \frac{\Delta y}{\Delta x}$$

$$y = -\frac{1}{3}(x-6)$$

x intercept form

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

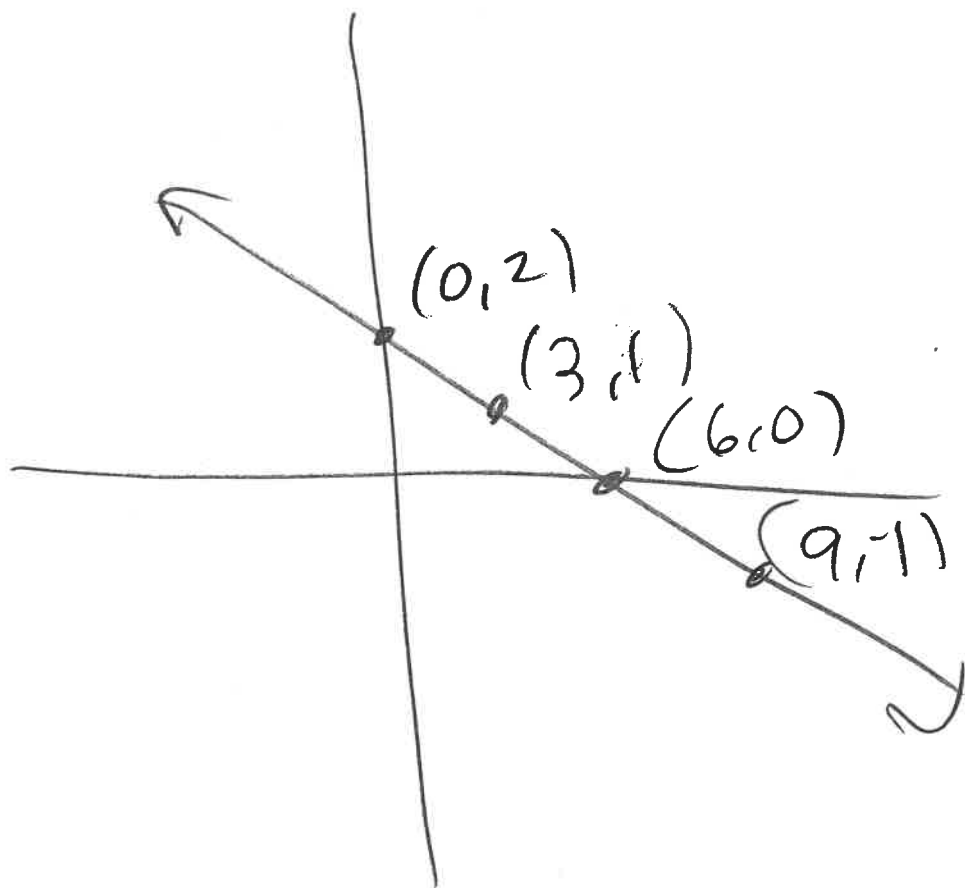
slope intercept

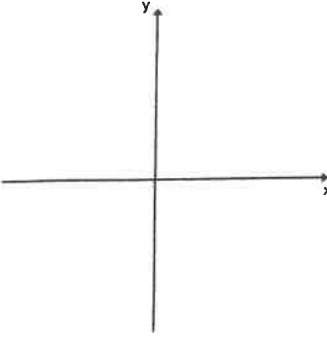
$$y = -\frac{1}{3}(x-6) + 0$$

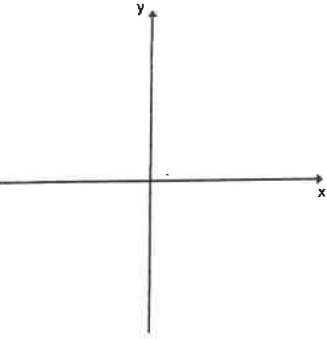
modified
point slope

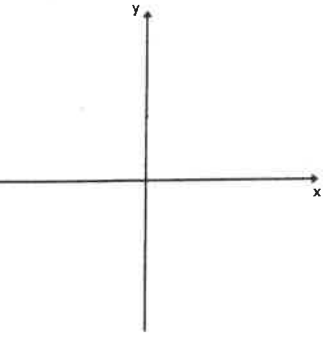
$$y + 0 = -\frac{1}{3}(x-6)$$

point slope form



	<p>Graph 4 $y = 3(x - 4) + 6$</p> <p>Label implied point, x intercept, and y intercept</p>	<p>Show work to find the intercepts here</p> <p>What is the implied point? _____ (be careful with signs!)</p> <p>What is the slope? $m =$ _____</p> <p>What is the y intercept? $(0, \text{_____})$ $b =$ _____</p> <p>What is the x intercept? $(\text{____}, 0)$</p> <p>Convert to slope intercept form _____</p>
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	<p>Graph 5 $y = \frac{-3}{5}(x + 10) - 2$</p> <p>Label implied point, x intercept, and y intercept</p>	<p>Show work to find the intercepts here</p> <p>What is the implied point? _____ (be careful with signs!)</p> <p>What is the slope? $m =$ _____</p> <p>What is the y intercept? $(0, \text{_____})$ $b =$ _____</p> <p>What is the x intercept? $(\text{____}, 0)$</p> <p>Convert to slope intercept form _____</p>
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	<p>Graph 6 $y = \frac{-4}{3}(x + 12) + 6$</p> <p>Label implied point, x intercept, and y intercept</p>	<p>Show work to find the intercepts here</p> <p>What is the implied point? _____ (be careful with signs!)</p> <p>What is the slope? $m =$ _____</p> <p>What is the y intercept? $(0, \text{_____})$ $b =$ _____</p> <p>What is the x intercept? $(\text{____}, 0)$</p> <p>Convert to slope intercept form _____</p>
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modified point Slope

$$y = 3(x-4) + 6$$

$$m = \frac{3}{1} \frac{dy}{dx}$$

implied point (4,6)

y-intercept

$$\boxed{\text{y-intercept}} \\ \boxed{(0, -6)}$$

$$y = 3(0-4) + 6 \\ = -12 + 6$$

$$y = -6$$

$$\boxed{y = 3x - 6}$$

Slope Intercept

$$0 = 3(x-4) + 6$$

$$0 = 3x - 12 + 6$$

$$0 = 3x - 6 \\ +6 \quad +6$$

$$6 = 3x$$

$$\boxed{x = 2}$$

$$\boxed{\text{x-intercept}} \\ \boxed{(2, 0)}$$

$$\text{OR } 0 = 3x - 6 \\ +6 \quad +6$$

$$6 = 3x$$

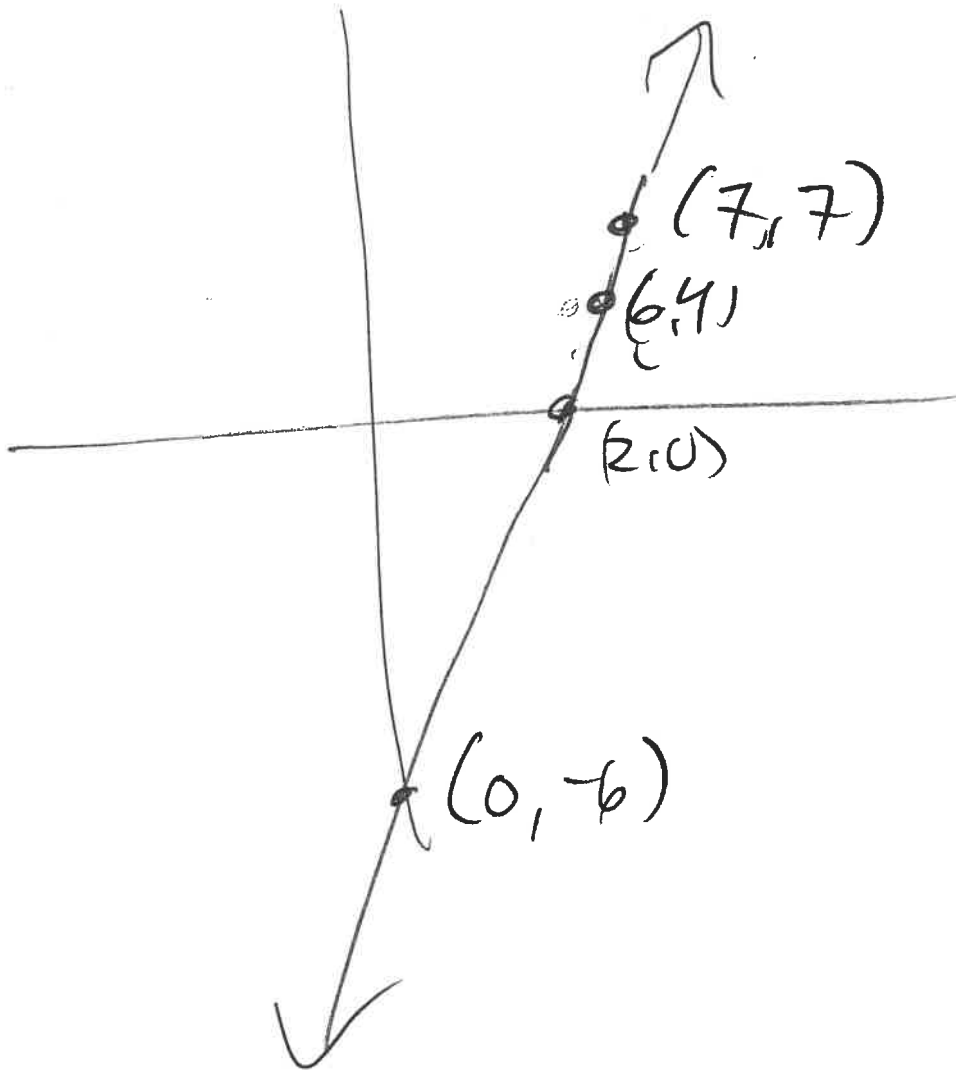
$$\boxed{x = 2}$$

$$\boxed{(2, 0)}$$

$$y = 3(x - 4) + 6 \quad \text{modified point slope}$$

$$y - 6 = 3(x - 4) \quad \text{Point Slope}$$

$$y = 3x - 6 \quad \text{Slope Intercept}$$



$$y = \frac{-3}{5}(x+10) - 2$$

Implied Point $(-10, -2)$

$$m = \frac{-3}{5} \leftarrow \Delta y$$
$$5 \leftarrow \Delta x$$

Y-intercept $y = \frac{-3}{5}(0+10) - 2$

$$= -6 - 2$$
$$= -8$$

$(0, -8)$ y-intercept

$y = \frac{-3}{5}x - 8$ Slope Intercept form

$$0 = \frac{-3}{5}(x+10) - 2$$

$$0 = \frac{-3}{5}x - 6 - 2$$

$$0 = \frac{-3}{5}x - 8$$

$$0 = -3x - 40$$
$$+40 \quad +40$$

$$40 = -3x$$
$$1x = \frac{-40}{3}$$

X-intercept
 $(-\frac{40}{3}, 0)$
 $(-13.\bar{3}, 0)$

OR

$$y = \frac{-3}{5}x - 8$$
$$5(0 = \frac{-3}{5}x - 8)$$
$$0 = -3x - 40$$

$$40 = -3x$$
$$x = \frac{-40}{3}$$

$$y = -\frac{3}{5}(x + 10) - 2$$

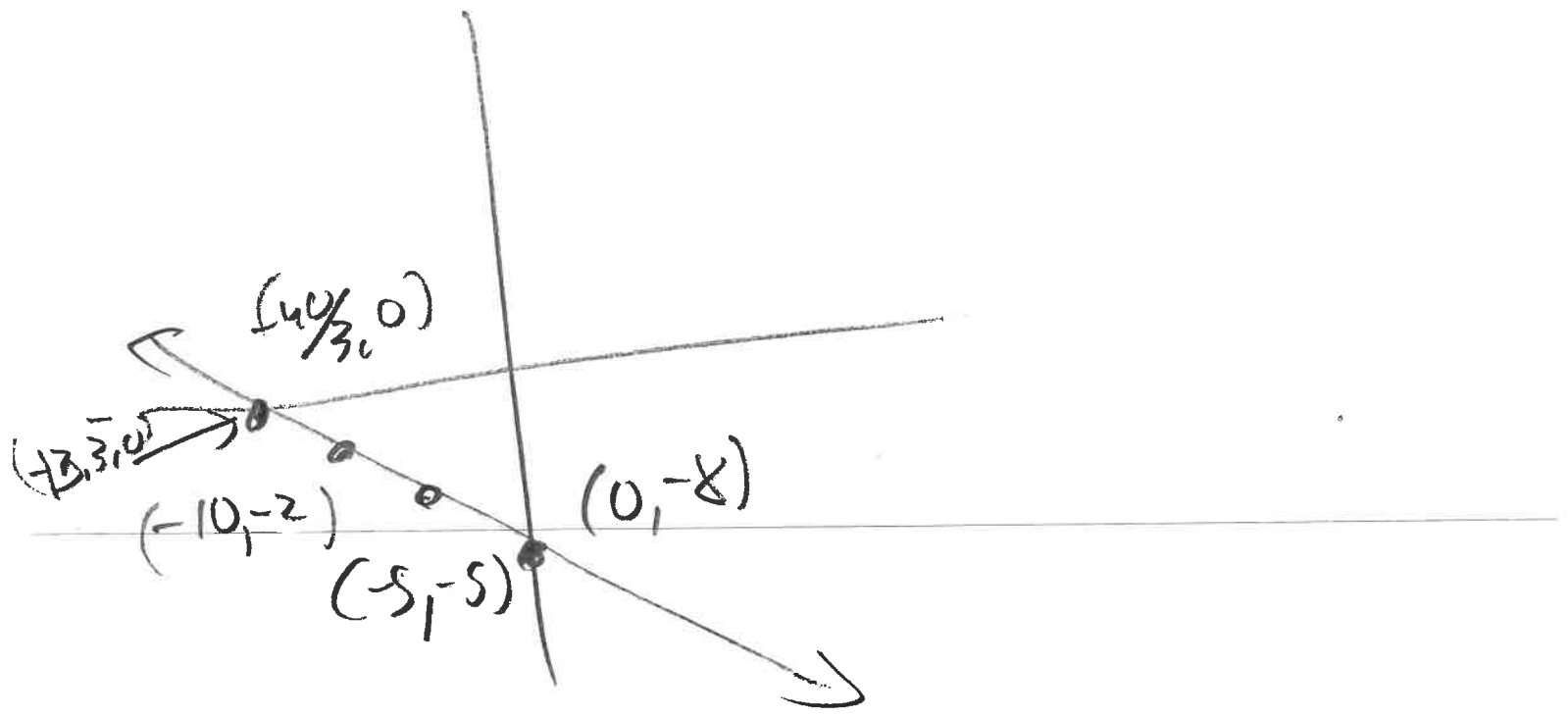
modified
Point Slope

$$y + 2 = -\frac{3}{5}(x + 10)$$

Point Slope

$$y = -\frac{3}{5}x - 8$$

Slope Intercept



$$y = -\frac{4}{3}(x+12) + 6$$

$$m = -\frac{4}{3} \frac{\Delta y}{\Delta x}$$

Implied point $(-12, 6)$

y intercept

$$y = -\frac{4}{3}(0+12) + 6$$

$$= -16 + 6$$

$$y = -10$$

$$(0, -10)$$

$$y = -\frac{4}{3}x - 10$$

Slope intercept form

x intercept

$$0 = -\frac{4}{3}(x+12) + 6$$

$$0 = -\frac{4}{3}x - 16 + 6$$

$$3(0 = -\frac{4}{3}x - 10)$$

$$0 = -4x - 30$$

+30

$$30 = -4x \quad x = \frac{-30}{4} = -\frac{15}{2} = -7.5$$

x intercept
 $(-\frac{30}{4}, 0) = (-\frac{15}{2}, 0)$
 $= (-7.5, 0)$

$$y = -\frac{4}{3}(x + 12) + 6$$

modified
point-slope

$$y - 6 = -\frac{4}{3}(x + 12)$$

Point-slope

$$y = -\frac{4}{3}x - 10$$

slope-intercept

