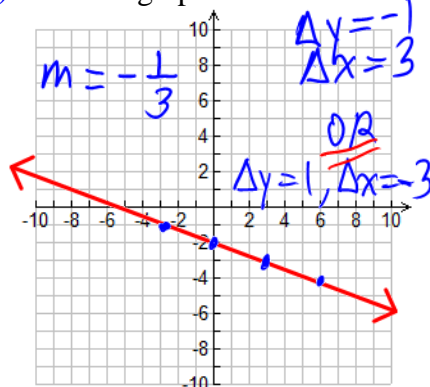


REVIEW: EQUATIONS OF LINEAR RELATIONS

1. A line has a slope of $-\frac{1}{3}$ and a y-intercept of -2 .

(a) Sketch a graph of the line.



(b) Write the equation of the line in slope-y-intercept form.

$$m = -\frac{1}{3}, \quad b = -2$$

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

$$(y = mx + b)$$

(c) Now write the equation in standard form.

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

$$\therefore 3y = \frac{3}{1}\left(-\frac{1}{3}x\right) - 3(2)$$

$$\therefore 3y = -x - 6$$

$$\therefore 3y + x + 6 = -x - 6 + x + 6$$

$$\therefore x + 3y + 6 = 0$$

2. Given the following equations of linear relations, state the slope and y-intercept.

(a) $y = x - 6$

$$m = \underline{1}$$

$$b = \underline{-6}$$

(b) $y = -x + 10$

$$m = \underline{-1}$$

$$b = \underline{10}$$

(c) $x = -7$

$$m = \underline{\text{und.}}$$

$$b = \underline{\text{und.}}$$

(d) $y = -7$

$$m = \underline{0}$$

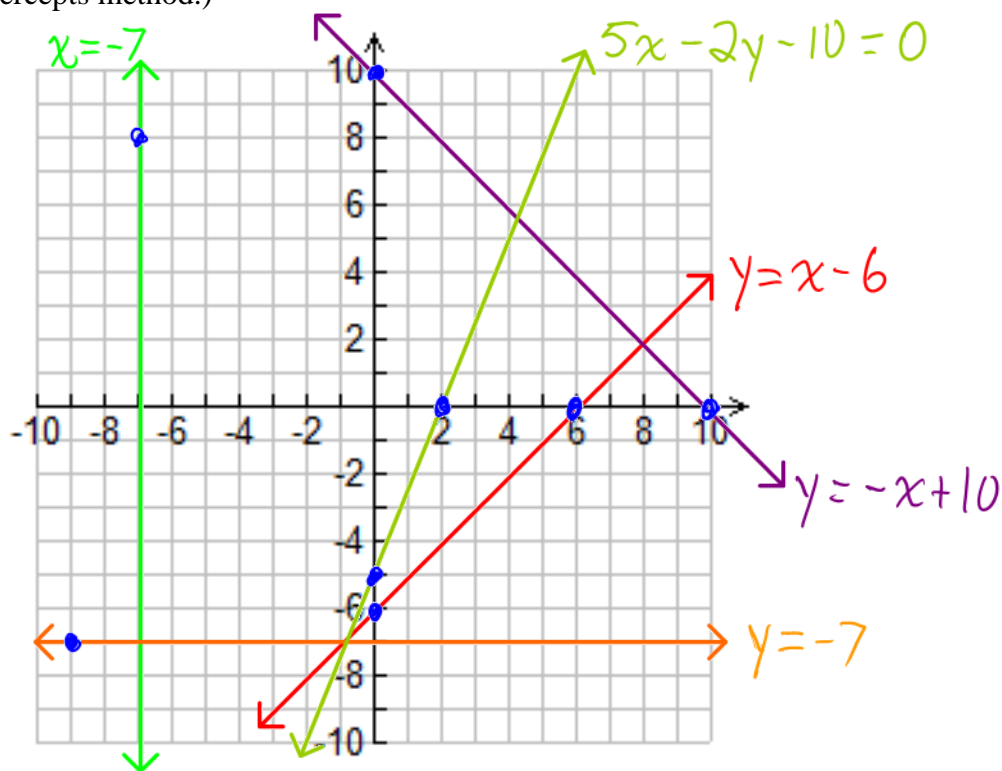
$$b = \underline{-7}$$

(e) $5x - 2y - 10 = 0$

$$m = \underline{\frac{5}{2}}$$

$$b = \underline{-5}$$

3. Using the grid provided below, graph each of the relations in question 2.
(Graph 2(e) using the intercepts method.)



4. Hannah's total pay includes a base salary and a percent of her sales.

The following table shows her total pay for three different sales levels.

Sales (\$)	Total pay (\$)
15 000	1700
17 500	1825
28 000	2350

+2500
+10500

Is the relation linear?
Cannot use first differences because the change in sales is not constant.
 $m_1 = \frac{1825 - 1700}{17500 - 15000} = \frac{125}{2500} = \frac{1}{20} = 0.05$
 $m_2 = \frac{2350 - 1825}{28000 - 17500} = \frac{525}{10500} = \frac{1}{20} = 0.05$

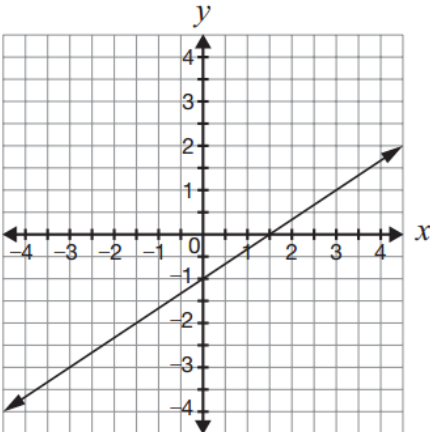
Hannah's rate of commission is 5%

Determine Hannah's total pay when her sales are \$47 000.

Show your work.

Calculate y-intercept using any row of table
Ans: $P = 0.05s + 950$ → base salary
 $s = 47000$ ∴ $P = 0.05(47000) + 950 = 3300$

5. Consider the two relations represented below.

Relation 1	Relation 2
$5x - 2y = 4$	

Determine the slope of the line representing each relation.

Show your work.