Slope as a Rate of Change – Practice

1. Determine the y-values and the rate of change in the y-values for each equation.

a) $y = -2x + 2$

x	y	Rate of Change
-2	6	
-1	4	-2
0	2	-2
1	0	-2
2	-2	-2

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

b) $y = 5x - 1$

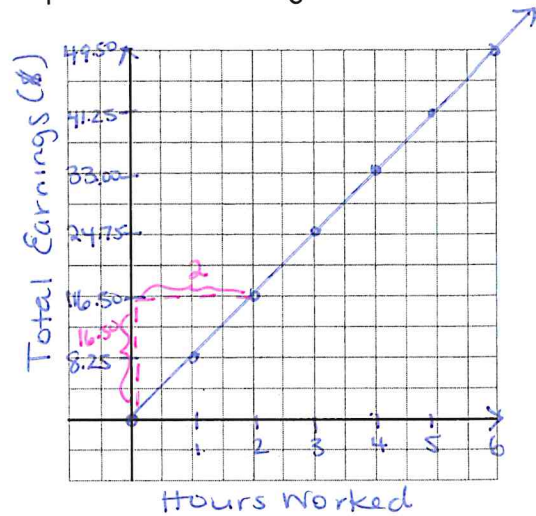| x	y	Rate of Change
-2	-11	
-1	-6	5
0	-1	5
1	4	5
2	9	5

$m = \dfrac{\Delta y}{\Delta x} = \dfrac{5}{1} = 5$

2. Karl works at a local grocery store, where he earns \$8.25/h. A typical shift lasts 6 h.

a) Complete the table of values to show his total earnings for up to 6 hours of work.

b) Determine the rate of change in his total earnings.

c) Graph your table of values and connect the points with a straight line.

Hours Worked	Total Earnings ($)	Rate of Change Δy
0	0	
1	8.25	8.25
2	16.50	8.25
3	24.75	8.25
4	33.00	8.25
5	41.25	8.25
6	49.50	8.25

$m = \dfrac{\Delta y}{\Delta x} = \dfrac{8.25}{1} = 8.25$

Total Earnings ($) vs Hours Worked

d) Choose any two points on the line and find the rise and run between them.

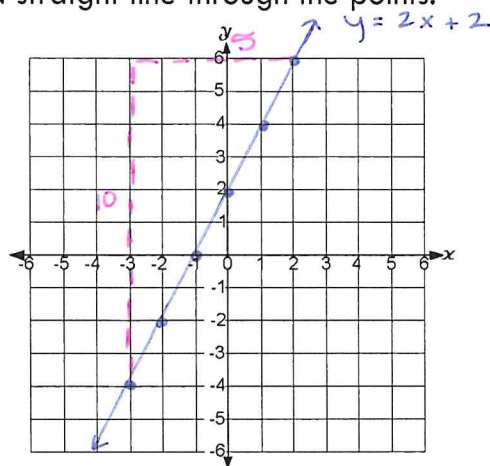rise = ____16.50____   run = ____2.____

e) Find the slope of the line.

$$slope(m) = \frac{rise}{run}$$

$$= \frac{16.50}{2}$$

$$= 8.25$$

f) What does the rate of change **represent** in **THIS** problem?

The pay per hour

3. The equation of a straight line is $y = 2x + 2$
   a) Create a table of values for this equation. Use x values from -3 to 2
   b) Graph your table of values and draw a straight line through the points.

x	y
-3	-4
-2	-2
-1	0
0	2
1	4
2	6

$y = 2x + 2$

   c) Choose any two points on the line and find the rise and run between them.
      rise = _____10_____   run = _____5_____

   d) Find the slope of the line.
      $$slope(m) = \frac{rise}{run}$$

      $$= \frac{10}{5}$$

      $$= 2$$

   e) What is the rate of change of this line? _____2_____

4. Janice works on an assembly line packing dolls into boxes to sell in stores. Janice can pack 15 dolls in 1 hour.

   a) Complete the table of values to show how many dolls Janice packs in 6 hours of work.

   b) Find the rate of change in the number of dolls that Janice packs.

   c) What does the rate of change **represent** in **THIS** problem?

Hours Worked	Total # of Dolls Packed	Rate of Change Δy
0	0	15
1	15	15
2	30	15
3	45	15
4	60	15
5	75	15
6	90	

b) $m = \frac{\Delta y}{\Delta x}$

$= \frac{15}{1}$

$= 15$

C) # of dolls packed per hour