Chapter 3 Review

3.1 Slope as a Rate of Change

1. a) Complete the table of values. Determine the rate of change.
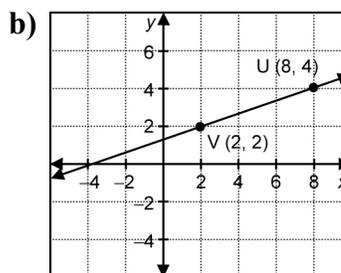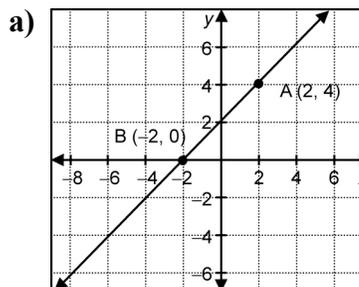
x	y	Rate of change
0	−40	
1	−30	
2	−20	
3		
4		

   b) What is the slope?
   c) What is the y-intercept?
   d) Write the equation of this linear relation.

2. Jeff shovels the driveways for his neighbours. His potential earnings are shown in the table.

Driveways shovelled	Earnings ($)
0	0.00
1	8.00
2	16.00
3	24.00
4	32.00

   a) Determine the rate of change in Jeff's earnings for each driveway shovelled.
   b) Graph the data from the table.
   c) Determine the slope of the line.

3. For each graph, determine the rise and run between the pairs of points shown, then calculate the slope.

   a)

   b)

3.2 Investigate Slope and y-Intercept Using Technology

4. Use a graphing calculator with standard window settings. Graph each linear relation. Sketch each graph in your note book.

   a) $y = 1 - \dfrac{1}{2}x$

   b) $y = 5x$

   c) $y = 0.75x + 5$

   d) $y = x - 1$

3.3 Properties of Slopes of Lines

5. Use the graphs from question 4.
  a) Identify the lines that have a positive slope.
  b) Identify the lines that have a negative slope.
  c) Identify the *y*-intercept of each line.
  d) Write an equation for a line that is parallel to each line.

6. Determine whether the lines represented by each pair of tables of values are parallel.

a)

x	*y*
0	10
1	13
2	16
3	19

x	*y*
10	0
13	1
16	2
19	3

b)

x	*y*
5	−5
10	−10
15	−15
20	−20

x	*y*
1	−1
6	−6
11	−11
16	−16

3.4 Determine the Equation of a Line

7. Determine the equation for each line in question 6.

8. Write the equation for each line given the slope and *y*-intercept.
  a) slope: −3, *y*-intercept: 0
  b) slope: −0.75, *y*-intercept: 0.5
  c) slope: 4, *y*-intercept: 4
  d) slope: −1, *y*-intercept: 0

9. Write the equation of the line given the slope and coordinates of one point on the line.
  a) *m* = 6, M(0, 5)
  b) *m* = −1, N(0, −2)
  c) *m* = 5, G(0, 6)
  d) *m* = −0.5, H(2, 4)

10. Write an equation for the line passing through each pair of points.
  a) A(3, 4), B(−12, −13)
  b) C(0, 0), D(−4, −8)
  c) E(−1, −2), F(6, 7)
  d) G(5, 3), H(0, 3)

3.5 Graph Linear Relations by Hand

11. Will swims laps in the pool every morning. His first lap takes him 20.5 s. But each time he swims a lap, he gets more tired, and he takes 2.5 s longer.
  a) Complete the table to show the time taken to complete each lap for the first 5 laps.

Lap	Time to complete the lap (s)
1	20.5
2	
3	
4	
5	

  b) Graph the linear relation.
  c) Write an equation that models the time taken for each lap.
  d) How many seconds does it take to complete lap 7?