Name: Solutions 26 Math 10

QUIZ – Chapter 5 Part III & 6.1 – 6.3

1. Below is a table which represents the value of an antique dresser as a function of the number of years since purchase.

Number of years since purchase t	Value V ($)
0	350
1	400
2	450
5	600
10	850

+1, +1, +3, +5 ; +50, +50, +150, +250

a) Is the relation linear? Explain. [1]

yes: a change of 1 year corresponds to a change of $50.

b) Which variable will you put on the x-axis if you represent this function graphically? [1]

t (number of years)

c) What is the rate of change? And what does it represent? [2]

$r = \frac{50}{1} = 50$ \$/year It represents the increase in value per year.

2. Determine if the following relations are linear. You do not need to justify your answer. [2]

a) The volume of a sphere as a function of its radius: $V = \frac{4}{3}\pi r^3$. NO

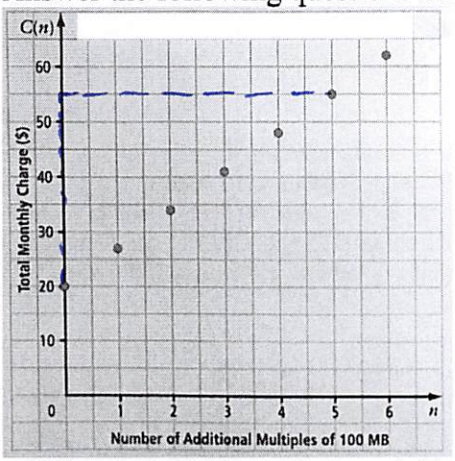
b) $y = -3x + 1.2$ YES

c) The relation between the value of an investment as a function of the number of years, knowing that it increases by 8% each year. NO

d) The amount of fuel left as a function of the number of kilometres driven. YES
at a constant speed.

e)) $y = 2x^2 - 3$ NO

3. Answer the following questions about the graph below:



a) What is the independent variable? [1]

n : number of additional multiples of 100 MB

b) Is this relation linear? Justify [1]

yes : straight line

c) What is the rate of change? What does it represent? [2]

$r = \frac{+35}{5} = 7\ \$/100\ MB$

The additional cost for 100 MB.

4. What is the slope and the y-intercept of the following lines: [3]

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

slope: $\frac{2}{3}$

y-intercept : -4

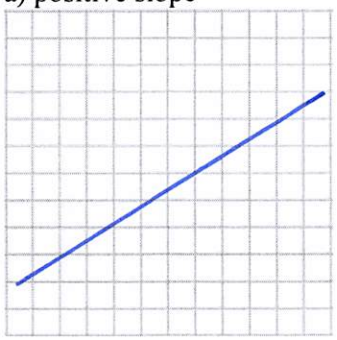
b) $y = x - 2$

slope: 1

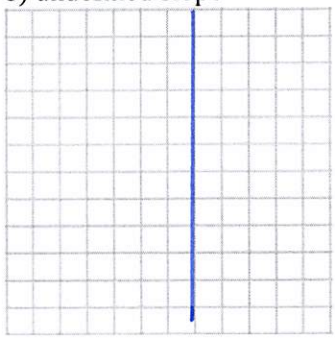
y-intercept : -2

5. Draw a line corresponding to each situation: [2]

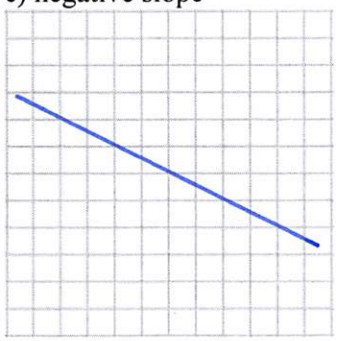
a) positive slope



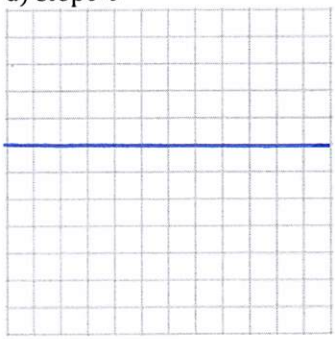
b) undefined slope



c) negative slope



d) slope 0



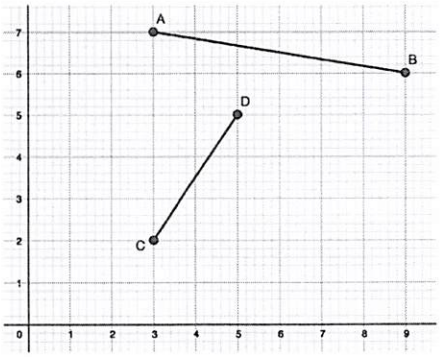
6. Fill the table with the words: parallel, perpendicular, neither. [3]

	$y = \frac{1}{3}x - 5$	$y = 3x - 5$	$y = -3x - 5$
$y = -\frac{1}{3}x + 5$	neither	perpendicular	neither
$y = \frac{1}{3}x + 5$	parallel	neither	perpendicular
$y = 3x + 5$	neither	parallel	neither

7. Determine the slope of a line that passes through the points A(205 ; -140) and B(-20 ; 10). [2]

$m_{AB} = \frac{10 + 140}{-20 - 205} = \frac{150}{-225} = \boxed{-\frac{2}{3}}$

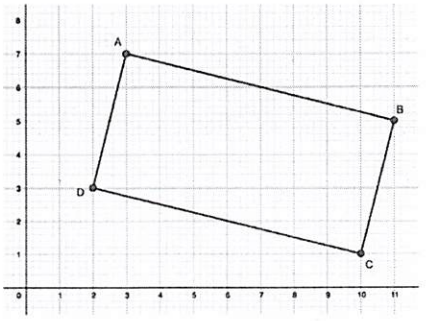
8. Determine the slope of the segments AB and CD. [2]



$m_{AB} = -\frac{1}{6}$

$m_{CD} = \frac{3}{2}$

9. Consider the points A, B, C et D on the figure below. Is ABCD a rectangle? Justify. [2]



$m_{AB} = -\frac{2}{8} = -\frac{1}{4}$

$m_{AD} = \frac{4}{1} = 4$

$m_{CD} = -\frac{2}{8} = -\frac{1}{4}$

$m_{BC} = \frac{4}{1} = 4$

yes:

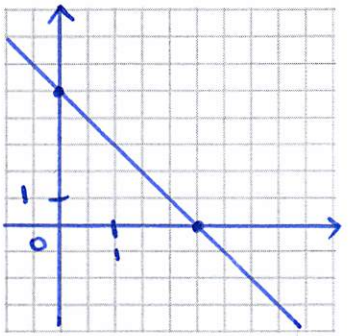
$AB \parallel CD$

$AD \parallel BC$

$AB \perp AD$

10. Consider the equation $y = -2x + 5$ [2]

Find the x and y-intercepts and use them to graph it.



x-int: $-2x + 5 = 0$

$2x = 5$

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

y-int: $y = -2(0) + 5$

$y = 5$