

QUIZ 5 Part IV & 6.1 – 6.3

1. Below is a table which represents the cost of a rental as a function of the number of km travelled.

Distance d (km)	Cost C (\$)
0	50
100	80
200	110
300	140
400	170

Handwritten notes: On the left, three brackets labeled '+100' span the rows from 0 to 100, 100 to 200, and 200 to 300. On the right, four arrows labeled '+30' point down from the cost values 50 to 80, 80 to 110, 110 to 140, and 140 to 170.

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

yes, because each increase of \$30 corresponds to +100km.

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

C (cost in \$)

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

$$\frac{C}{d} = \frac{+30}{+100} = 0.3 \text{ \$ / km}$$

|| The additional cost for each additional km

2. Determine if the following relations are linear. You do not need to justify your answer. [3]

a) The volume of a sphere: $V = \frac{4}{3}\pi r^3$ *not linear*

b) perimeter of a circle as a function of its radius: $p = 2\pi r$. *yes linear*

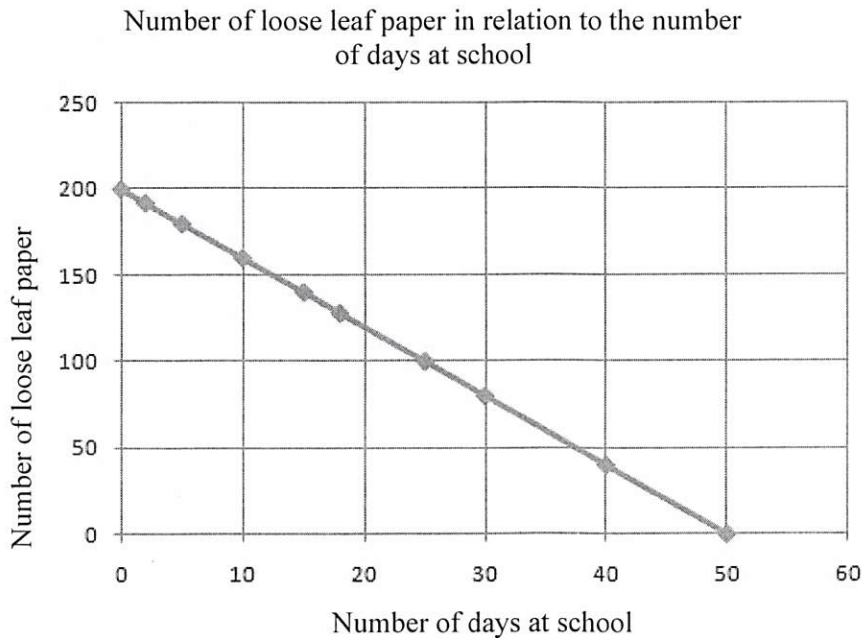
c) The relation between the value of a car and the number of year that have passes, if the car loses 10% of its value each year. *not linear*

d) The number of legs as function of the number of chickens considered. *yes linear*

e) $y = -\frac{2}{3}x + 3$ *yes linear*

f) $y = 5x^2 + 3$ *not linear*

3. Answer the following questions about the graph below:



- a) What is the independent variable? *Number of days at school* [1]
- b) Is this relation linear? Justify *yes (straight line)* [1]
- c) What is the rate of change? What does it represent? [2]

$$r = \frac{-200}{50} = -4 \text{ papers/day}$$

The number of papers used each day.

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

a) $y = \frac{2}{5}x - 3$

slope: $\frac{2}{5}$

y-intercept: -3

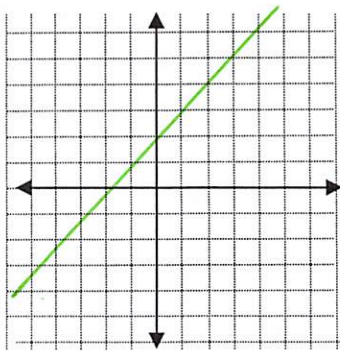
b) $y = x + 5$

slope: 1

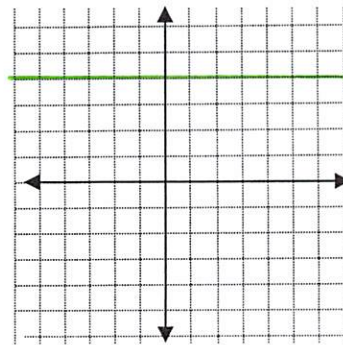
y-intercept: 5

5. Sketch an example of a line with respect to the following restrictions.

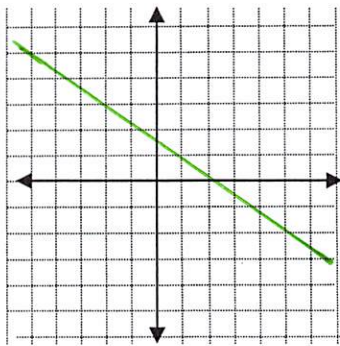
[2]



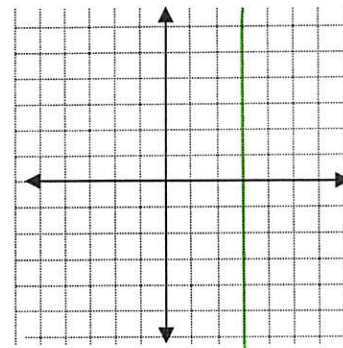
#1 - positive slope



#4 - slope = 0



#2 - negative slope



#3 - undefined slope

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

[3]

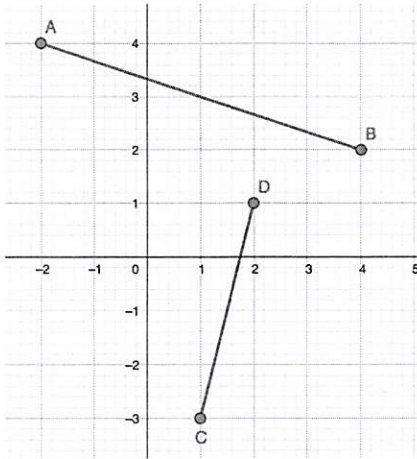
	$y = \frac{1}{5}x - 1$	$y = -\frac{1}{5}x - 1$	$y = 5x - 1$
$y = -\frac{1}{5}x + 1$	neither	//	\perp
$y = \frac{1}{5}x - 1$	//	neither	neither
$y = -5x - 1$	\perp	neither	neither

Nom : _____

7. Determine the slope of a line that passes through the points A(145 ; -3) and B(-15 ; 231). [2]

$$m_{AB} = \frac{231 - (-3)}{-15 - 145} = \frac{234}{-160} = -\frac{117}{80}$$

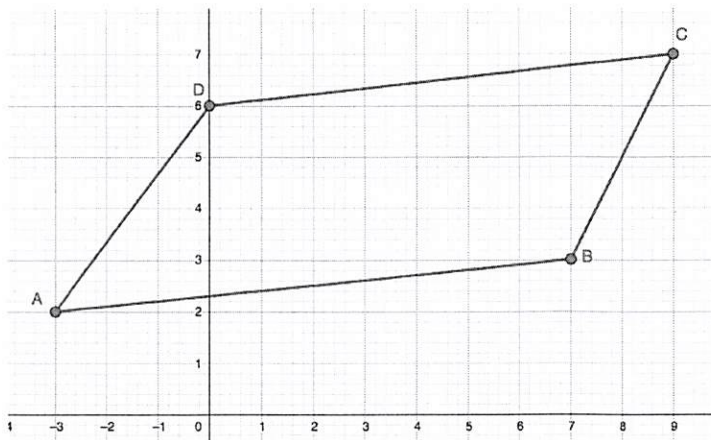
8. Determine the slope of the segments AB and CD. [2]



$$m_{AB} = \frac{-2}{6} = -\frac{1}{3}$$

$$m_{CD} = \frac{+4}{1} = 4$$

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



$$m_{AD} = \frac{4}{3}$$

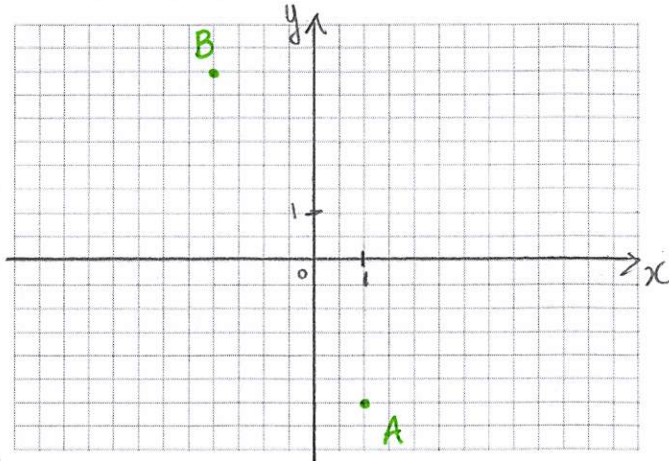
$$\Rightarrow AD \not\parallel BC$$

$$m_{BC} = \frac{4}{2}$$

$$\Rightarrow \text{NOT a parallelogram}$$

Nom : _____

10. a) On the graph below, place the points A(1 ; -3) and B(-2 ; 4) [1]



- b) Determine the coordinates of a possible point C if ABC is a right triangle (right angled at A). [1]

$$m_{AB} = -\frac{7}{3} \Rightarrow m_{AC} = \frac{3}{7} \quad \text{for example : } C(8, 0)$$

11. Consider the equation $y = \frac{2}{5}x - 4$

- a) What is its y-intercept? [1]

$$\boxed{-4}$$

- b) What is its x-intercept? [1]

$$0 = \frac{2}{5}x - 4 \quad \frac{2}{5}x = 4 \quad \boxed{x = 10}$$

- c) Using the information from a) and b), sketch a graph of the equation. [1]

