Test - Graphs: linear and quadratic

Year: Year 9 · Duration: 45 minutes · /20

Name:	Date:	**Mark: /20**

Question	1	2	3	4	5	Total
marks	4	4	4	4	4	**20**
Mark						

Show your working.

Question 1 (4 marks)

Question 1 – A table of values

Complete the table of values for $y = 3x - 2$.

x	-1	0	1	2	3
y	?	?	?	?	?

a. Write the missing values of y. (2 marks)
b. Write down the gradient and the y-intercept. (2 marks)

Question 2 (4 marks)

Question 2 – A quadratic curve

Here is the table for $y = x^2 - 2x - 3$.

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

a. Complete the table. (2 marks)
b. Write down the roots of $x^2 - 2x - 3 = 0$. (1 mark)
c. Write down the coordinates of the turning point. (1 mark)

Question 3 (4 marks)

Question 3 – Equation of a line

A line passes through $(0, -2)$ and $(3, 4)$.

a. Find its gradient. (1 mark)
b. Write its equation. (1 mark)
c. Show that $(5, 8)$ lies on the line. (1 mark)
d. Write the equation of the parallel line through $(0, 5)$. (1 mark)

Question 4 (4 marks)

Question 4 – Problem: choosing a gym

Gym A charges £20 to join and then £12 per month. Gym B charges £30 to join and then £10 per month.

a. Write an equation for the total cost y pounds after x months for each gym. (2 marks)
b. After how many months do the two gyms cost the same, and what is the cost? (2 marks)

Question 5 (4 marks)

Question 5 – Problem: the thrown ball

A ball is thrown. Its height h metres at distance x metres is $h = x(8 - x)$.

x	0	2	4	6	8
h	0	?	16	?	0

a. Complete the table. (2 marks)
b. State the maximum height and the distance at which it happens. (1 mark)
c. State how far the ball travels before landing. (1 mark)