

Chapter 6 Test

Multiple Choice

1. According to this relation, the value of y when $x = 5$ is:

x	y
0	0
1	3
2	12
3	27
4	48

- A** 67 **B** 70 **C** 73 **D** 75

2. According to this relation, the value of y when $x = 1$ is:

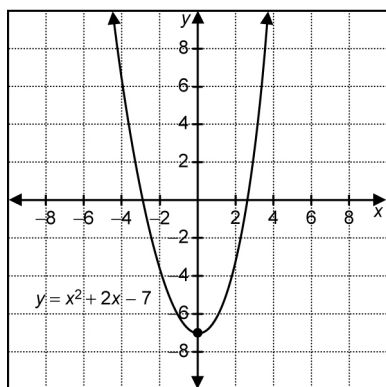
x	y
-4	26
-3	19
-2	14
-1	11
0	10

- A** -14 **B** -11 **C** 0 **D** 11

3. Which equation represents a quadratic relation?

- A** $y = x^2 - 9$ **B** $y = x + 4$
C $y = 2x$ **D** $y = 1$

4. The y -intercept for the graph is:



- A** 3 **B** -7
C 0 **D** no y -intercept

5. If the coordinates of the vertex are $(0, -5)$, which statement is NOT true?

- A** the equation of the axis of symmetry is $x = -5$
B the y -intercept is -5
C the maximum/minimum value is -5
D $x = 0$ when $y = -5$

6. If the axis of symmetry is $x = -4$, which statement is true?

- A** the x -coordinate of the vertex is 0
B the x -coordinate of the vertex is 4
C the x -coordinate of the vertex is -4
D there is no vertex

7. Marie sent a text message to two friends. Each friend passed the text message on to two other friends, and so on. If there are 129 people in the school, how many text messages have to be exchanged before everyone has read it?

- A** 3 **B** 5 **C** 7 **D** 9

Short Response

8. Determine whether the relation is linear or quadratic.

x	y
-4	4
-3	2.25
-2	1
-1	0.25
0	0

9. Sketch a parabola with these features:
 i) the coordinates of the vertex are $(0, 4)$
 ii) the equation of the axis of symmetry is $x = 0$
 iii) the y -intercept is 4
 iv) the maximum value is 4
 v) the x -intercepts are 1 and -1

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10. Make a table of values for each relation, then determine whether the relation is quadratic.

a) $y = 4x - 1$

b) $y = x^2 + 4x + 3$

c) $y = -x^2 + 64$

d) $y = 5x^2$

Extended Response

11. Tom's science project involves measuring the distance that a toy rocket travels through the air after it is launched. The table shows the height and horizontal distance of the rocket.

Horizontal Distance (m)	Height (m)
0	0
5	5
10	10
15	25
20	45
25	70
30	45
35	25

- a) Draw a scatter plot of the data.
b) Using a graphing calculator, find the equation of the curve of best fit.

12. Del takes photographs of the sunrise every morning. He has noticed that the path of the sun rising over the horizon can be modelled by the quadratic relation $y = 36 - x^2$.

- a) Complete the table of values.

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

- b) Graph the data.

- c) Identify the y -intercept, the x -intercepts, the coordinates of the vertex, and the equation of the axis of symmetry.

13. The shape of the roof over the school gym can be represented by the equation $h = -0.5w^2 + 10$, where h is the height of the roof from the top of the walls, w is the width from the centre of the roof to the walls.

- a) Make a table of values from $w = -3$ to $w = 3$.
b) Determine the first and second differences.
c) Describe the shape of the roof based on your answers from part b)