Quadratic tables and graphs

6 questions | 16 marks

Equivalent correct methods earn the corresponding marks.

1. For $y = x^2 + 1$, find y at $x = -2, 0, 2$. [2 marks]

Square the inputs to get $4, 0, 4$, then add 1.

Answer: $5, 1, 5$

2. For $y = x^2 - 3x$, find y when $x = -2$. [2 marks]

$(-2)^2 - 3(-2) = 4 + 6 = 10$.

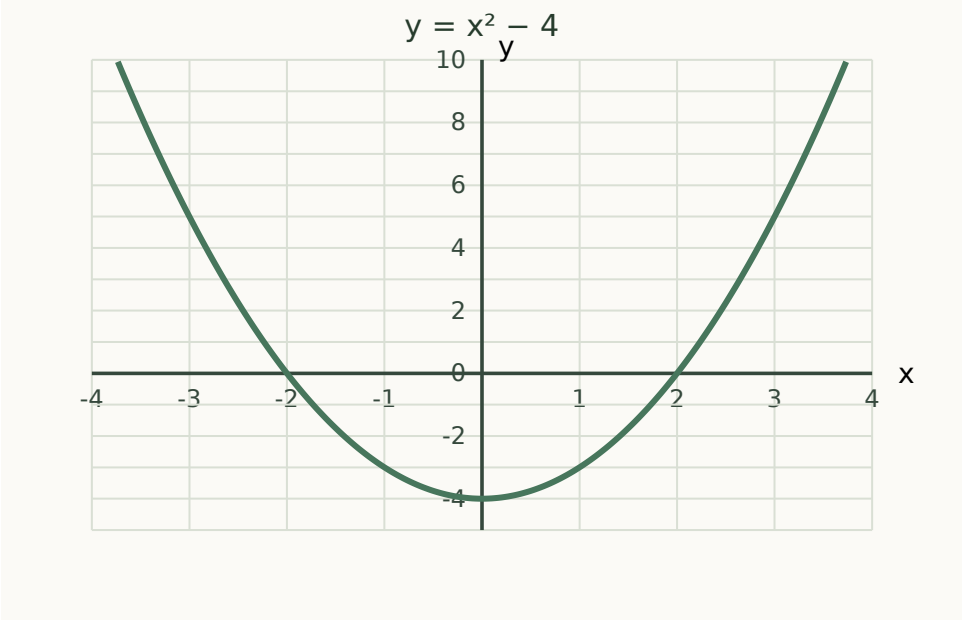
Answer: 10

3. Complete the outputs for $y = x^2 - 4$ at $x = -3, -2, -1, 0, 1, 2, 3$. [3 marks]

Square each input, then subtract 4.

Answer: $5, 0, -3, -4, -3, 0, 5$

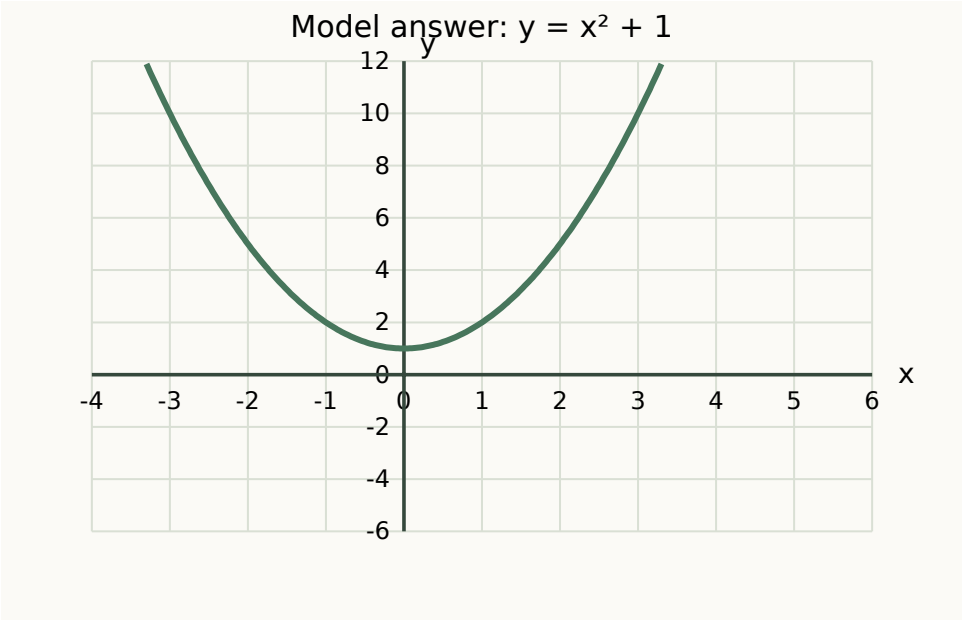
4. Use the supplied graph of $y = x^2 - 4$ to read its two points on the x-axis. [2 marks]



On the x-axis, $y = 0$; the curve crosses at $x = -2, 2$.

Answer: $(-2, 0)$ and $(2, 0)$

5. Sketch $y = x^2 + 1$ using at least five points. State the lowest point. [4 marks]



A useful table is $(-2, 5), (-1, 2), (0, 1), (1, 2), (2, 5)$.

Join with a smooth upward curve.

Answer: Lowest point $(0, 1)$.

6. Why is joining only $(-2, 4)$ and $(2, 4)$ with a straight line not a sketch of $y = x^2$? [3 marks]

At $x = 0$ the rule gives 0, while the straight join gives 4.

More points are needed to show the turn.

Answer: It misses the curved shape and the point $(0, 0)$.