Vertex/intercept/axis features

6 questions | 14 marks

Equivalent correct methods earn the corresponding marks.

1. State vertex/axis for $y=(x-5)^2+2$. [2 marks]

Read square form.

Answer: Vertex $(5,2)$; axis $x=5$.

2. Find the y-intercept of $y=-2(x+1)^2+8$. [2 marks]

At $x=0$, $y=-2+8=6$.

Answer: $(0,6)$

3. Find x-intercepts of $y=(x-1)^2-9$. [2 marks]

Set $(x-1)^2=9$.

Then $x-1$ is plus/minus 3.

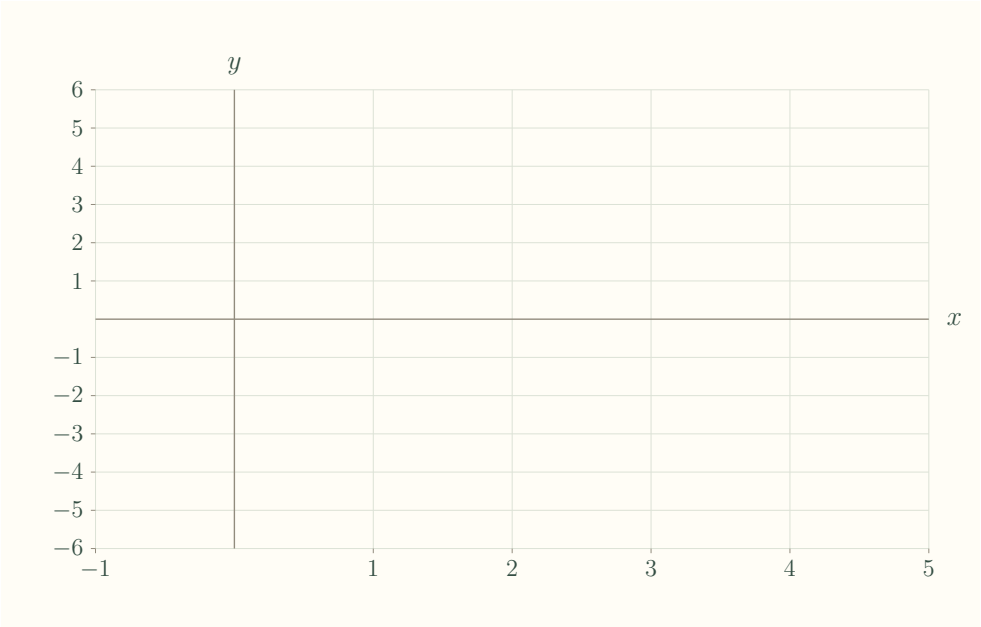
Answer: $(-2,0),(4,0)$

4. Find the vertex of $y=x^2+6x+4$. [2 marks]

Rewrite as $(x+3)^2-5$.

Answer: $(-3,\ -5)$

5. Sketch $y=-(x-2)^2+4$, labelling vertex/intercepts. [4 marks]



Solve $(x-2)^2=4$.

Use symmetry $x=2$.

Answer: Vertex $(2,4)$; roots $(0,0),(4,0)$; opens downward.

6. Give domain/range of $y=3(x+1)^2-6$ for real x. [2 marks]

The square is nonnegative.

Its minimum is zero at $x=-1$.

Answer: Domain all real numbers; range $y\geq -6$.