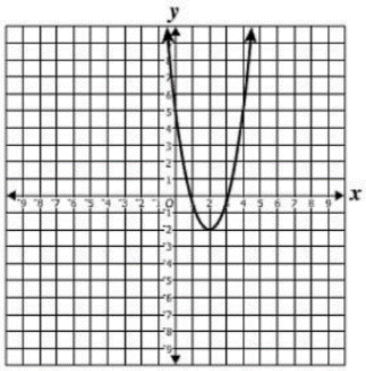
Quadratic Functions (Graphing) – Guided Practice

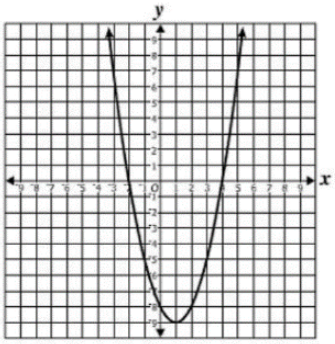


Based on the zeros, which best represents the graphed function?

- **A** $y = (x-3)(2x+2)$
- **B** $y = (2x+6)(x+1)$
- **C** $y = 2(x+3)(x-1)$
- **D** $y = 2(x-3)(x-1)$

What are the real roots of $x^2 - 7x + 10 = 0$?

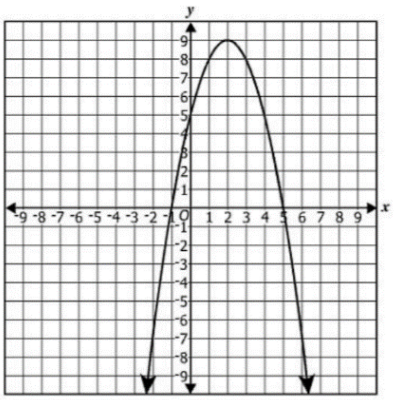
- **A** 2 and 5
- **B** 1 and 10
- **C** -1 and -10
- **D** -2 and -5



What are the solutions to $x^2 - 2x - 8 = 0$?

- **A** $x = 1$ and $x = -9$
- **B** $x = 0$ and $x = -8$
- **C** $x = -2$ and $x = 4$
- **D** $x = -4$ and $x = 2$

Identify each of the x- and y-intercepts of the relation shown.



Which number is a zero of the function h ?

$$h(x) = x^2 + 3x - 18$$

- **A** -6
- **B** -3
- **C** 0
- **D** 6

Which equation could represent a graph with x-intercepts of $(4, 0)$ and $(-7, 0)$?

- **A** $y = x^2 + 3x - 28$
- **B** $y = x^2 - 3x - 28$
- **C** $y = x^2 + 3x + 28$
- **D** $y = x^2 - 3x + 28$

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Identifying Key Parts on Desmos

EXAMPLE: Use Desmos to find the following characteristics of the given quadratic.

$$f(x) = x^2 + 2x - 3$$

Axis of Symmetry		1. Type the function into Box 1 as written 2. Click on the gray dots to locate: a. **Vertex** (write as a point) b. x**- and** y**-intercepts** (write as a point) 3. The **axis of symmetry** is the x-value of the vertex 4. Look at the y-value of the vertex for **range** 5. Remember: **domain** of a quadratic is all reals!
Vertex		
Open up or down? Minimum or maximum?		
y**-intercept**		
x**-intercept**		
Domain		
Range		

Using Desmos to Find Quadratics in Standard Form

EXAMPLE: Which function is a quadratic in standard form with x-intercepts at $x = -3$ and $x = -1$? **A.** $y = x^2 - 3x - 1$ **B.** $y = -x^2 - 3x - 1$ **C.** $y = x^2 + 4x + 3$ **D.** $y = x^2 - 4x + 3$	1. Recognize that x-intercepts can be written as factors • Write as two binomials with opposite signs for the x-values! 2. Type: $y = (x + 3)(x + 1)$ into Box 1 • **What does the graph look like?** 3. Write the answers A – D in Boxes 2 – 5 • **Which graph / quadratic matches what is Box 1?**