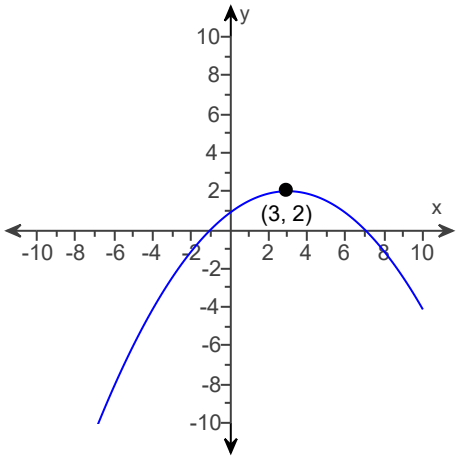
Student: _____ **Instructor:** Fouad Khoury **Assignment:** Quiz 1.4
Date: _____ **Course:** Math-1314

1. Use the graph to find the vertex, the axis of symmetry, and the maximum or minimum value of the function.



- **A.** (2, − 3); x = 2; maximum: 3
- **B.** (− 3, − 2); x = 3; maximum: 2
- **C.** (2,3); x = 2; maximum: 3
- **D.** (3,2); x = 3; maximum: 2

2. Find the vertex of the parabola.

$f(x) = 2x^2 + 8x + 11$

- **A.** (3, − 2)
- **B.** (2, − 3)
- **C.** (− 2,3)
- **D.** (− 3,2)

3. Find the axis of symmetry of the given function.

$f(x) = x^2 - 13x + 8$

- **A.** $x = \frac{13}{4}$
- **B.** $x = -\frac{13}{2}$
- **C.** $x = 13$
- **D.** $x = \frac{13}{2}$

4. Determine whether there is a maximum or minimum value for the given function, and find that value.

$f(x) = x^2 - 16x + 71$

- **A.** Maximum: 8
- **B.** Maximum: − 7
- **C.** Minimum: 0
- **D.** Minimum: 7

5. Determine whether there is a maximum or minimum value for the given function, and find that value.

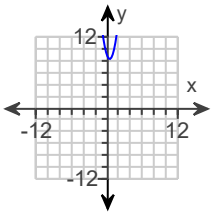
$f(x) = -9x^2 - 36x - 38$

- **A.** Minimum: 0
- **B.** Minimum: 2
- **C.** Maximum: 2
- **D.** Maximum: −2

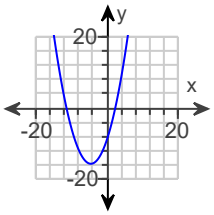
6. Graph.

$f(x) = 3x^2 - 3x - 9$

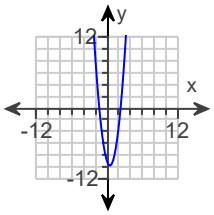
A.



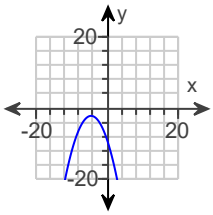
B.



C.



D.



7. Find the range of the given function.

$f(x) = 3x^2 - 30x + 72$

- **A.** $(-\infty, -3]$
- **B.** $[-3, \infty)$
- **C.** $[5, \infty)$
- **D.** $(-\infty, -5]$

8. Find the range of the given function.

$f(x) = -2x^2 + 20x - 53$

- **A.** $(-\infty, -3]$
- **B.** $[3, \infty)$
- **C.** $(-\infty, -5]$
- **D.** $[-5, \infty)$

9. Find the intervals on which the function is increasing and the intervals on which the function is decreasing.

$f(x) = x^2 - 2x - 8$

- **A.** Increasing on $(1, \infty)$; decreasing on $(-\infty, 1)$
- **B.** Increasing on $(-1, \infty)$; decreasing on $(-\infty, -1)$
- **C.** Increasing on $(-\infty, -1)$; decreasing on $(-1, \infty)$
- **D.** Increasing on $(-\infty, 1)$; decreasing on $(1, \infty)$