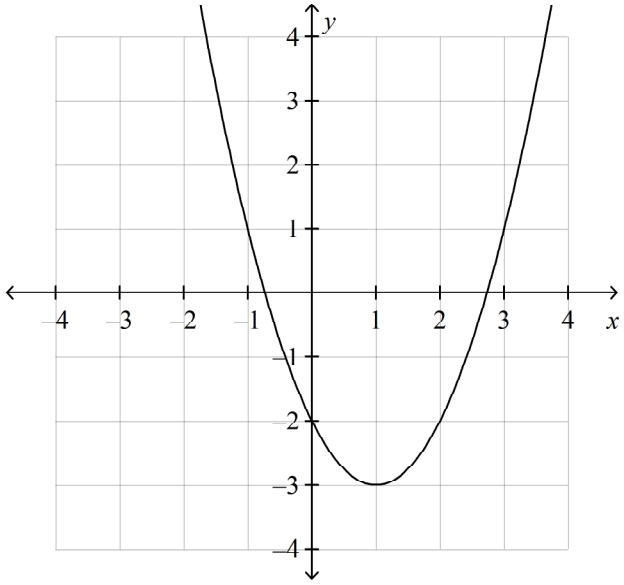
Name: _____ **Class:** _____ **Date:** _____ **ID: A**

Chapter 4 Test 1 Review 2

Multiple Choice
Identify the choice that best completes the statement or answers the question.

____ 1. Identify the vertex of the graph. Tell whether it is a minimum or maximum.



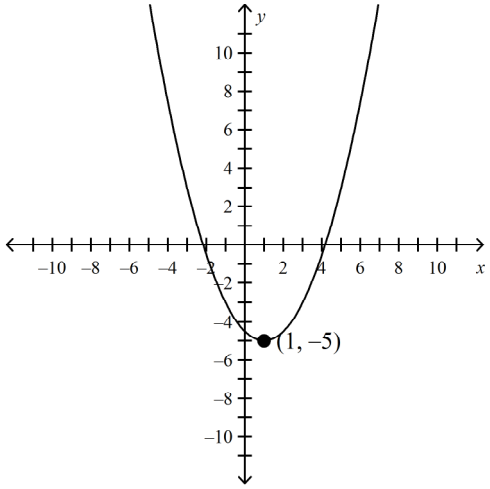
a. (–3, 1); minimum
b. (–3, 1); maximum
c. (1, –3); maximum
d. (1, –3); minimum

____ 2. A parabola _____ has an axis of symmetry.
a. always
b. sometimes
c. never

____ 3. Find the equation of the axis of symmetry and the coordinates of the vertex of the graph of the function.
$y = 4x^2 + 5x - 1$

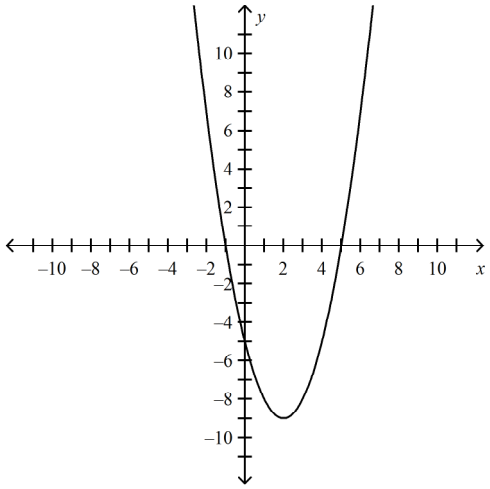
a. $x = \frac{5}{8}$; vertex: $\left(\frac{5}{8}, 4\frac{5}{8}\right)$
b. $x = \frac{5}{8}$; vertex: $\left(\frac{5}{8}, 3\frac{11}{16}\right)$
c. $x = -\frac{5}{8}$; vertex: $\left(-\frac{5}{8}, -5\frac{11}{16}\right)$
d. $x = -\frac{5}{8}$; vertex: $\left(-\frac{5}{8}, -2\frac{9}{16}\right)$

____ 4. Identify the vertex of the parabola. Then give the minimum or maximum value of the function.



a. The vertex is $(1, -5)$, and the minimum is –5.
b. The vertex is $(1, -5)$, and the maximum is 1.
c. The vertex is $(1, -5)$, and the minimum is 1.
d. The vertex is $(1, -5)$, and the maximum is –5.

____ 5. Find the zeros of the quadratic function $f(x) = x^2 - 4x - 5$ from the graph.



a. 5 and –1
b. 1 and –5
c. –5
d. 2

____ 6. Find the axis of symmetry of the graph of $y = -x^2 + 2x - 4$.
a. $y = -3$
b. $x = 1$
c. $y = 1$
d. $x = -3$

____ 7. Simplify $\sqrt{-20}$ using the imaginary number i.
a. $-2\sqrt{5}$
b. $i\sqrt{20}$
c. $2\sqrt{-5}$
d. $2i\sqrt{5}$

Write the number in the form *a* + *bi*.

____ 8. $\sqrt{-49} + 10$

a. $10 + i\sqrt{49}$
c. $10 + 7i$
b. $7 + 10i$
d. $49 + 10i$

____ 9. $-3 - \sqrt{-40}$

a. $3 - 2i\sqrt{10}$
c. $3 + i\sqrt{40}$
b. $-3 + 2i\sqrt{10}$
d. $-3 - 2i\sqrt{10}$

Simplify the expression.

____ 10. $(5 + 6i) + (4 + 2i)$

a. $17i$
c. $11 + 6i$
b. $-9 - 8i$
d. $9 + 8i$

____ 11. $(4 + i) - (1 - 4i)$

a. $3 + 5i$
c. $-3 - 5i$
b. $5 - 3i$
d. $8i$

____ 12. $(-i)(-5i)$

a. $5i$
b. $-5i$
c. -5
d. 5

____ 13. $(1 - i)(2 + 4i)$

a. $6 + 2i$
c. $2 + 2i$
b. $-2 + 2i$
d. $2 - 4i$

Short Answer

14. Graph $y = x^2 - 3x + 4$. Find the axis of symmetry and the vertex.

Factor the expression.

15. $49b^2 - 4$

16. Factor $27x^2z + 36xz + 12z$ completely.

17. Determine whether $49h^2 - 25t^2$ is a difference of two squares. If so, factor it. If not, explain why.

18. Factor $2x^2 + 9x + 10$.

19. Factor $3x^2 - 16x + 5$.

20. Factor the trinomial $b^2 - 5b - 14$.

21. Factor the trinomial $c^2 + 15c + 56$.

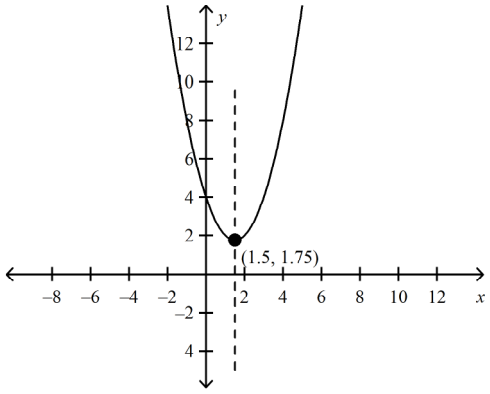
22. Describe how you would graph $f(x) = 2x^2 + 4x - 1$.

Chapter 4 Test 1 Review 2
Answer Section

MULTIPLE CHOICE

1. D
2. A
3. D
4. A
5. A
6. B
7. D
8. C
9. D
10. D
11. A
12. C
13. A

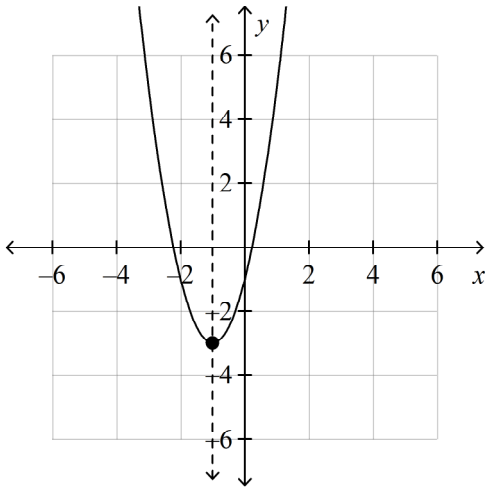
SHORT ANSWER

14. 

The axis of symmetry is $x = \frac{3}{2}$. The vertex is $\left(\frac{3}{2}, \frac{7}{4}\right)$.

15. $(7b + 2)(7b - 2)$
16. $3z(3x + 2)^2$
17. $(7h + 5t)(7h - 5t)$
18. $(x + 2)(2x + 5)$
19. $(x - 5)(3x - 1)$
20. $(b - 7)(b + 2)$
21. $(c + 8)(c + 7)$

22.



Axis of symmetry: $x = -1$
Vertex: $(-1, -3)$