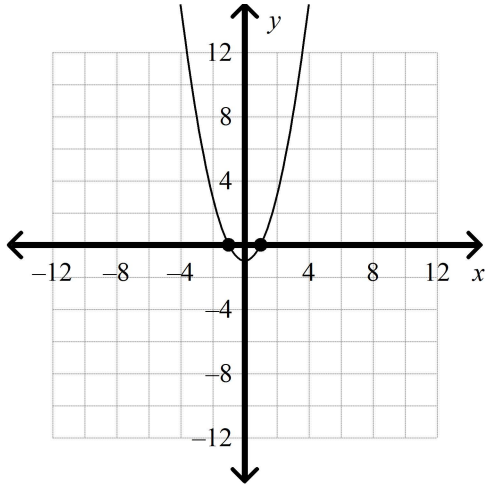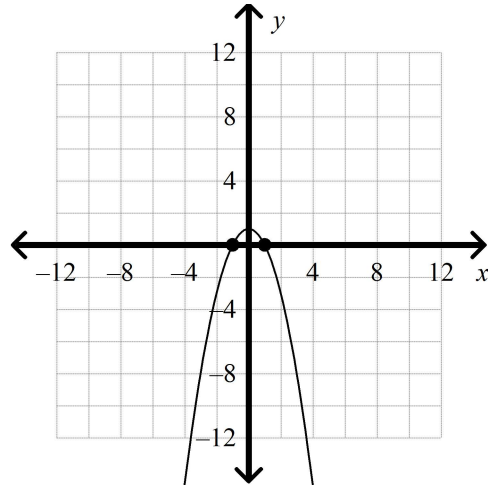## Unit 9 Test   Alg 1

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

_____ 1.   What are the solutions of the equation $x^2 - 1 = 0$? Use a graph of the related function.
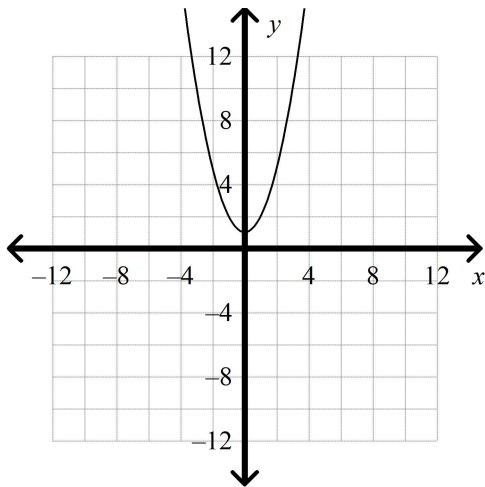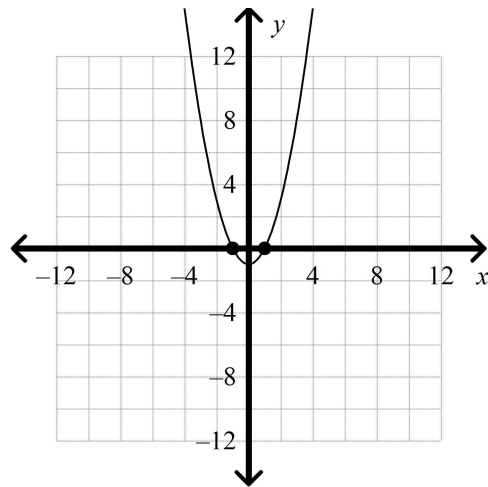
a.

There are two solutions: -1 and 1.

c.

There are two solutions: -1 and 1.

b.

There are no real number solutions.

d.

There are two solutions: $\pm\sqrt{2}$.

Solve the equation using the Zero-Product Property.

_____ 2.   Complete the following sentence:
You can verify the zeros of the function $y = x^2 + 6x - 7$ by using a graph and finding where the graph _____.
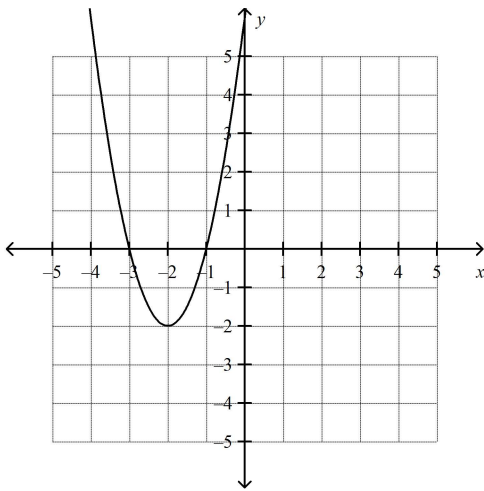a.   crosses the y-axis   c.   is at a maximum
b.   is at a minimum   d.   crosses the x-axis

_____ 3. $-7n(5n + 5) = 0$

    a. $-\dfrac{1}{7}, 1$ c.   0, 1

    b. $-\dfrac{1}{7}, -1$ d.   0, –1

What are the solutions of the equation?

_____ 4. $z^2 - 2z - 63 = 0$

    a.   –7, 9   c.   7, –9
    b.   –7, –9   d.   7, 9

_____ 5. What is the factored form of this function?

    a. $f(x) = (x + 2)(x + 2)$ c. $f(x) = 3(x + 2)(x + 1)$
    b. $f(x) = (x + 3)(x + 1)$ d. $f(x) = 2(x + 3)(x + 1)$

Simplify the radical expression.

_____ 6. $\sqrt{16h^2}$

    a. $4h$ c. $6\sqrt{10h^2}$
    b. $4h^2$ d. $h\sqrt{8}$

Simplify the radical expression.

_____ 7. $\sqrt{\dfrac{5}{9}}$

    a. $\dfrac{\sqrt{5}}{3}$ b. $3\sqrt{5}$ c. $\dfrac{\sqrt{5}}{5}$ d. $\dfrac{5}{3}$

Solve the equation using square roots.

_____ 8. $2x^2 - 78 = 84$
a. $-\sqrt{9}, \sqrt{9}$ c. $-9, 9$
b. $-81, 81$ d. no real number solutions

Solve the quadratic equation by completing the square.

_____ 9. $x^2 + 14x + 39 = 0$
a. $7 \pm \sqrt{59}$ c. $-14 \pm \sqrt{59}$
b. $-7 \pm \sqrt{10}$ d. $196 \pm \sqrt{10}$

_____ 10. What is the value of c such that $x^2 - 8x + c$ is a perfect-square trinomial?
a. -4 b. 16   c. 32   d. 64

Solve the equation.

_____ 11. $x^2 - 14x + 49 = 36$
a. $1, 13$ c. $-13, -1$
b. $-13, 13$ d. $1, -1$

Rewrite the equation in vertex form. Name the vertex and _y_-intercept.

_____ 12. $y = x^2 + 8x + 13$
a. $y = (x + 8)^2 - 3$
    vertex: $(8, -3)$
    y-intercept: $(0, -3)$
b. $y = (x + 4)^2 + 29$
    vertex: $(-4, -3)$
    y-intercept: $(0, 13)$

c. $y = (x + 8)^2 + 9$
    vertex: $(8, -3)$
    y-intercept: $(0, -3)$
d. $y = (x + 4)^2 - 3$
    vertex: $(-4, -3)$
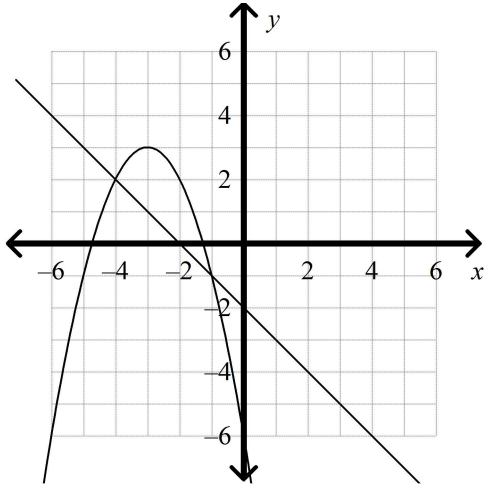 y-intercept: $(0, 13)$

Use the quadratic formula to solve the equation. If necessary, round to the nearest hundredth.

_____ 13. $x^2 + 5 = -6x$
a. $-1, 5$ b. $1, 5$ c. $1, -5$ d. $-1, -5$

Use graphing to find the solutions to the system of equations.
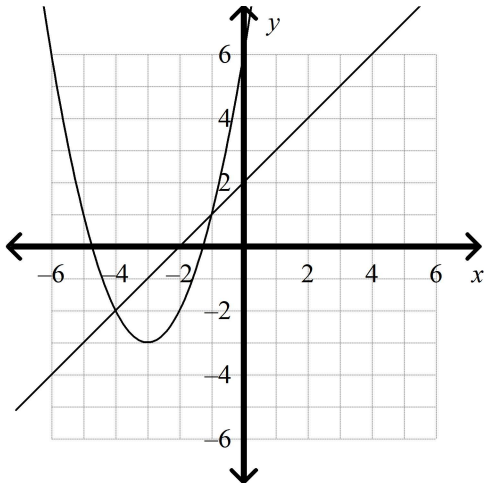
____ 14. $\begin{cases} y = x^2 + 6x + 6 \\ \quad y = x + 2 \end{cases}$
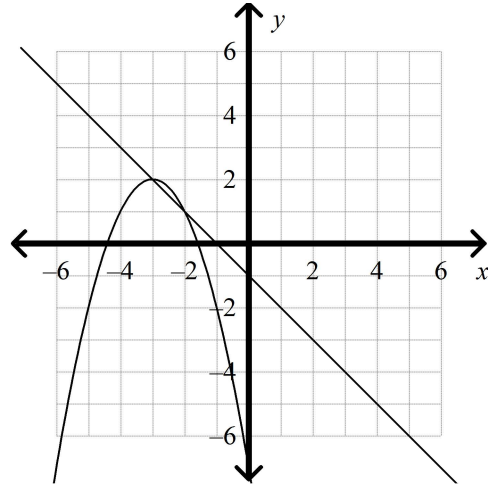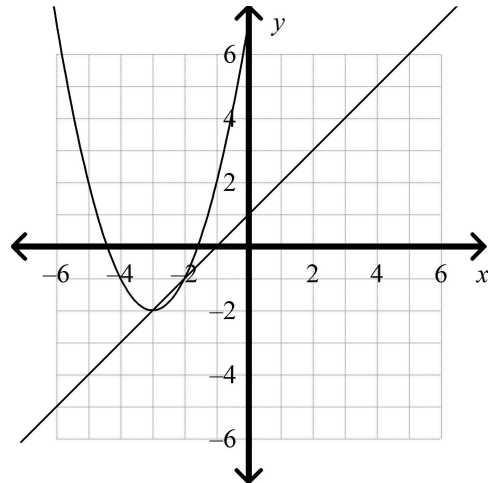
a.

$(-4, 2)$
$(-1, -1)$

c.

$(-3, 2)$
$(-2, 1)$

b.

$(-4, -2)$
$(-1, 1)$

d.

$(-3, -2)$
$(-2, -1)$

Short Answer

Solve the equation using the Zero-Product Property.

15. $(3x - 9)(9x + 4) = 0$

What are the solutions of the equation?

16. $x^2 - 3x = 4$

17. Solve $x^2 + 3x - 4 = 0$ for x.

Simplify the radical expression.

18. $\sqrt{80a^4b^4}$

19. $\sqrt{98}$

20. $\sqrt{500}$

What value completes the square for the expression?

21. $x^2 + 6x$

Find the vertex of each parabola by completing the square.

22. $x^2 - 6x + 8 = y$

Solve the equation using square roots.

23. $x^2 - 81 = 0$

Solve the equation by completing the square. Round to the nearest hundredth if necessary.

24. $x^2 - 4x = 10$

Use the Quadratic Formula to solve the equation.

25. $-x^2 + 6x + 7 = 0$

What is the solution of the linear-quadratic system of equations?

26. $\begin{cases} y = x^2 + 2x - 4 \\ y = x + 2 \end{cases}$

Unit 9 Test   Alg 1
Answer Section

MULTIPLE CHOICE

1. ANS: A   PTS: 1
    REF: 9-1 Solving Quadratic Equations Using Graphs and Tables
2. ANS: D   PTS: 1
    REF: 9-1 Solving Quadratic Equations Using Graphs and Tables
3. ANS: D   PTS: 1   REF: 9-2 Solving Quadratic Equations by Factoring
4. ANS: A   PTS: 1   REF: 9-2 Solving Quadratic Equations by Factoring
5. ANS: D   PTS: 1   REF: 9-2 Solving Quadratic Equations by Factoring
6. ANS: A   PTS: 1   REF: 9-3 Rewriting Radical Expressions
7. ANS: A   PTS: 1   REF: 9-3 Rewriting Radical Expressions
8. ANS: C   PTS: 1   REF: 9-4 Solving Quadratic Equations Using Square Roots
9. ANS: B   PTS: 1   REF: 9-5 Completing the Square
10. ANS: B   PTS: 1   REF: 9-5 Completing the Square
11. ANS: A   PTS: 1   REF: 9-5 Completing the Square
12. ANS: D   PTS: 1   REF: 9-5 Completing the Square
13. ANS: D   PTS: 1   REF: 9-6 The Quadratic Formula and the Discriminant
14. ANS: B   PTS: 1   REF: 9-7 Solving Systems of Linear and Quadratic Equations

SHORT ANSWER

15. ANS:
    $3, -\dfrac{4}{9}$

    PTS: 1   REF: 9-2 Solving Quadratic Equations by Factoring
16. ANS:
    $4, -1$

    PTS: 1   REF: 9-2 Solving Quadratic Equations by Factoring
17. ANS:
    $-4, 1$

    PTS: 1   REF: 9-1 Solving Quadratic Equations Using Graphs and Tables
18. ANS:
    $4a^2 b^2 \sqrt{5}$

    PTS: 1   REF: 9-3 Rewriting Radical Expressions
19. ANS:
    $7\sqrt{2}$

    PTS: 1   REF: 9-3 Rewriting Radical Expressions

20. ANS:
    $10\sqrt{5}$

    PTS: 1   REF: 9-3 Rewriting Radical Expressions
21. ANS:
    9

    PTS: 1   REF: 9-5 Completing the Square
22. ANS:
    (3,–1)

    PTS: 1   REF: 9-5 Completing the Square
23. ANS:
    –9, 9

    PTS: 1   REF: 9-4 Solving Quadratic Equations Using Square Roots
24. ANS:
    $2\pm\sqrt{14}$

    PTS: 1   REF: 9-5 Completing the Square
25. ANS:
    –1, 7

    PTS: 1   REF: 9-6 The Quadratic Formula and the Discriminant
26. ANS:
    (2, 4)
    (–3, –1)

    PTS: 1   REF: 9-7 Solving Systems of Linear and Quadratic Equations