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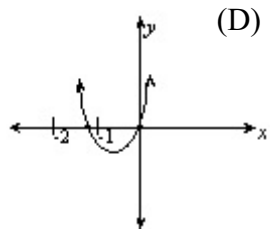
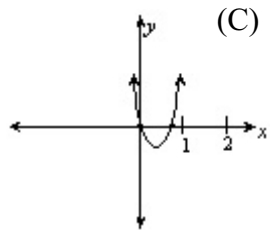
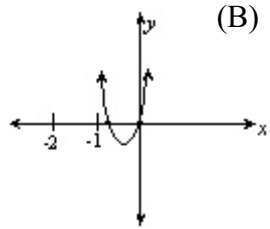
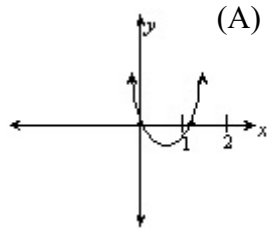
Roots, zeros, x intercepts
for
Quadratic Equations

Quadratic Formula

1. What are the roots of $x^2 - 6x = 16$?

- (A) $\{0, 6\}$
- (B) $\{-2, 8\}$
- (C) $\{2, -8\}$
- (D) $\{3 \pm i\sqrt{17}\}$

2. Which graph best represents the quadratic function $y = ax(4x + 3), a > 0$?



3. Which quadratic function has two equal zeros at $x = -2$?

- (A) $y = x(x + 2)$
(B) $y = x^2 + 3x + 2$
(C) $y = (x - 2)^2 + 2$
(D) $y = x^2 + 4x + 4$
4. What are the solutions for $-7x = x^2 - 60$?
- (A) $x = -5$ and $x = 12$
(B) $x = 5$ and $x = -12$
(C) $x = \frac{7 \pm i\sqrt{191}}{2}$
(D) $x = \frac{-7 \pm i\sqrt{191}}{2}$
5. What are the exact values of the roots for $0 = x^2 + 32$?
- (A) ± 5.657
(B) $\pm 5.657i$
(C) $\pm 4i\sqrt{2}$
(D) $\pm 4\sqrt{2}$
6. What is the simplest form of $\frac{-5 \pm \sqrt{-75}}{5}$?
- (A) $\pm 5i\sqrt{3}$
(B) $-1 \pm 5i\sqrt{3}$
(C) $-1 \pm i\sqrt{3}$
(D) $-1 \pm i\sqrt{75}$
7. What are the roots of $0 = 2x^2 + 36$?
- (A) $\pm 3\sqrt{2}$
(B) $3\sqrt{2}$
(C) $\pm 3i\sqrt{2}$
(D) $3i\sqrt{2}$

8. What are the zeros of $y = (x - 3)(2x - 5)$?
- (A) $\{-3, -\frac{5}{2}\}$
(B) $\{0, 15\}$
(C) $\{\frac{5}{2}, 3\}$
(D) $\{3, 5\}$
9. What are the roots of $3x^2 + 27 = 0$?
- (A) ± 3
(B) $\pm 3i$
(C) 3
(D) $3i$
10. What are the zeros of $y = x^2 - 13x + 30$?
- (A) $-3, 10$
(B) $3, 10$
(C) $-2, 15$
(D) $2, -15$
11. What are the zeros of the quadratic function $y = 3x^2 - 24$?
- (A) $\pm 2\sqrt{6}$
(B) $\pm 2\sqrt{2}$
(C) $\pm 2i\sqrt{6}$
(D) $\pm 2i\sqrt{2}$
12. What are the roots of $3(x - 1)(x + 2) = 0$?
- (A) $\{-2, 1\}$
(B) $\{-1, 2\}$
(C) $\{-3, -2, 1\}$
(D) $\{-2, 1, 3\}$

13. What are the zeros of $y - 7 = 4x^2$?
- (A) $\pm \frac{\sqrt{7}}{4}$
(B) $\pm \frac{i\sqrt{7}}{4}$
(C) $\pm \frac{\sqrt{7}}{2}$
(D) $\pm \frac{i\sqrt{7}}{2}$
14. Solve: $\sqrt{2}x^2 - \sqrt{2} = 0$.
- (A) 1
(B) ± 1
(C) $1, \sqrt{2}$
(D) $\pm 1, \sqrt{2}$
15. Which is a quadratic equation having roots $\frac{1}{3}$ and 5?
- (A) $3x^2 + 14x + 5 = 0$
(B) $3x^2 + 16x + 5 = 0$
(C) $3x^2 + 14x - 5 = 0$
(D) $3x^2 - 16x + 5 = 0$
16. Which represents the zero(s) of the quadratic function $y = -4x^2 - 36$?
- (A) $3i$
(B) $\pm 3i$
(C) 3
(D) ± 3
17. What are the x -intercepts of the graph of $y = (x)(3x + 2)$?
- (A) $\left(-\frac{3}{2}, 0\right)$

- (B) $\left\{-\frac{2}{3}, 0\right\}$
(C) $\left\{\frac{2}{3}, 0\right\}$
(D) $\left\{\frac{3}{2}, 0\right\}$
18. If $x = 5$ is one root of the equation $x^2 + kx + 40 = 0$, what is the value of 'k'?
- (A) -13
(B) -10
(C) 10
(D) 13
19. If $f(x) = 2x^2 + 64$, what are the roots of $f(x) = 0$?
- (A) $\pm 2\sqrt{2}$
(B) $\pm 2i\sqrt{2}$
(C) $\pm 4\sqrt{2}$
(D) $\pm 4i\sqrt{2}$
20. The graph of which function has x -intercepts of $(\sqrt{5}, 0)$ and $(-\sqrt{5}, 0)$?
- (A) $y = -2x^2 - 10$
(B) $y = -2x^2 + 10$
(C) $y = 2x^2 + 10$
(D) $y = 2x^2 - 10$
21. Solve: $2x + x^2 = x$.
- (A) $\{-1\}$
(B) $\{-1, 1\}$
(C) $\{0, -1\}$
(D) $\{0\}$

Answers Roots, Zeros, x intercepts

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

13. **D**

14. **B**

15. **D**

16. **B**

17. **B**

18. **A**

19. **D**

20. **D**

21. **C**

1. Algebraically determine the **EXACT** roots of $6x - 4x^2 = 9$ giving your answer(s) in simplest form.

2. Algebraically determine the exact roots in simplest form of $x^2 + 7 = 4x$.

3. Algebraically determine the **EXACT** roots in simplest form for $x(x - 2) = -3$

4. Algebraically determine the **EXACT** roots in simplest form for: $x(x + 4) = -13$

5. Algebraically determine the **EXACT** roots in simplest form for $\frac{5}{x-3} = \frac{x}{x+1}$

6. Algebraically determine the **EXACT** roots in simplest form for $2x = -3x^2 + 4$

7. Algebraically determine the **EXACT** roots in simplest form for
 $16x(x+1) = -13$

8. Algebraically determine the **EXACT** roots in simplest form for $4x(x - 3) = 3$