

## Practice Challenge - Objective

Subject: Mathematics

Topic : Quadratic Equations Exam  
Prep 1

Class: X

1. The number of common roots of the equations  
 $x^2 - 7x + 10 = 0$  and  $x^2 - 10x + 16 = 0$  is

- A. 0
- B. 1
- C. 2
- D. 3

2. Let  $f(x) = ax^2 + bx + c$ . Then, match the following.

a. Sum of roots of $f(x) = 0$	1. $-\frac{b}{a}$
b. Product of roots of $f(x) = 0$	2. $\frac{c}{a}$
c. Roots of $f(x) = 0$ are real and distinct	3. $b^2 - 4ac = 0$
d. Roots of $f(x) = 0$ are real and identical.	4. $b^2 - 4ac > 0$

- A.  $a - 2, b - 1, c - 3, d - 4$
- B.  $a - 1, b - 2, c - 4, d - 3$
- C.  $a - 3, c - 4, b - 2, d - 1$
- D.  $a - 1, b - 2, c - 3, d - 4$

3. Find the value of  $k$  for which  $x^2 - 4x + k = 0$  has coincident roots.

- A. 0
- B. -2
- C. 4
- D. -4

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4. Shriya and Vidya solved a quadratic equation. In solving it, Shriya made a mistake in the constant term and obtained the roots as 5,  $-3$  while Vidya made a mistake in the coefficient of  $x$  and obtained the roots as 1,  $-3$ . The correct roots of the equation are
- 1, 3
  - $-1, 3$
  - $-1, -3$
  - 1,  $-1$
5. What will be the condition for  $(a^2 - 9)x^2 + bx + c = 0$  to be a quadratic equation?
- $a \neq 0$ ;  $a, b, c$  are real
  - $a = -3$ ;  $a, b, c$  are real
  - $a = 3$ ;  $a, b, c$  are real
  - $a \neq \pm 3$ ;  $a, b, c$  are real
6. Which of the following is not a quadratic equation?
- $(x-2)^2 + 1 = 2x - 3$
  - $(x+2)^3 = x^3 - 4$
  - $x(x+1) + 8 = (x+2)(x-2)$
  - $x(2x+3) = (x^2 + 1)$

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7. Write  $x^2 + 10x + 16 = 0$  in the form  $x^2 + px + qx + 16 = 0$  such that  $p \times q = 16$
- A.  $p = 8, q = 2$
  - B.  $p = -8, q = -2$
  - C.  $p = 2, q = 6$
  - D.  $p = -2, q = -8$
8. The altitude of a right triangle is 7 cm less than its base. If the hypotenuse is 13 cm, find the other two sides (in cm).
- A. 2,5
  - B. 5,3
  - C. 7,2
  - D. 12,5
9. What are the roots of the quadratic equation  $(x + 2)^2 - 16 = 0$ ?
- A.  $x = 2$  or  $-6$
  - B.  $x = -2$  or  $6$
  - C.  $x = 2$  or  $6$
  - D.  $x = -2$  or  $-6$

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10. During a practice match, a softball pitcher throws a ball whose height can be modeled by the equation  $h = -16t^2 + 24t + 1$ , where  $h$  = height in feet and  $t$  = time in seconds. How long does it take for the ball to reach a height of 6 feet?
- A.** 2.2 and 3.8 secs
  - B.** 5.4 and 6.2 secs
  - C.** 0.25 and 1.25 secs
  - D.** 7 and 5 secs