

## Class 10 Mathematics - Quadratic Equations

Name: \_\_\_\_\_

Date: \_\_\_\_\_

### Advanced Worksheet 1

#### Questions

1. Find the discriminant of:

$$x^2 - 6x + 8 = 0$$

2. Find the discriminant of:

$$x^2 - 4x + 4 = 0$$

3. Find the discriminant of:

$$x^2 + 2x + 5 = 0$$

4. Determine the nature of the roots of:

$$3x^2 - 5x + 2 = 0$$

5. Determine the nature of the roots of:

$$2x^2 + 4x + 5 = 0$$

6. Without solving, determine whether the roots of:

$$x^2 - 12x + 36 = 0$$

are equal, distinct or non-real.

#### Answer Key

1.

$$D = b^2 - 4ac$$

$$= (-6)^2 - 4(1)(8)$$

$$= 36 - 32$$

$$= 4$$

Two distinct real roots

2.

$$D = (-4)^2 - 4(1)(4)$$

$$= 16 - 16$$

$$= 0$$

Equal roots

3.

$$D = 2^2 - 4(1)(5)$$

$$= 4 - 20$$

$$= -16$$

No real roots

4.

$$D = (-5)^2 - 4(3)(2)$$

$$= 25 - 24$$

$$= 1$$

Two distinct real roots

5.

$$D = 4^2 - 4(2)(5)$$

$$= 16 - 40$$

$$= -24$$

No real roots

6.

$$D = (-12)^2 - 4(1)(36)$$

$$= 144 - 144$$

$$= 0$$

Equal roots

