

Nature of the Roots

Use the discriminant to find the nature of the roots.

1) $3w^2 + 5w + 2 = 0$

2) $b^2 + 7 = 4b + 1$

3) $6q^2 - q = -2$

4) $s(-s + 6) + 9 = -2s^2$

5) $7a^2 + 5(a + 1) = 3$

6) $v^2 + v - 1 = 0$

7) $w^2 + 6w = 2w - 4$

8) $2(u^2 - u) - 3u = -8$

Nature of the Roots

Answer key

Use the discriminant to find the nature of the roots.

1) $3w^2 + 5w + 2 = 0$

$$b^2 - 4ac = 1 > 0$$

The roots are real and unequal.

2) $b^2 + 7 = 4b + 1$

$$b^2 - 4ac = -8 < 0$$

The roots are unreal (complex).

3) $6q^2 - q = -2$

$$b^2 - 4ac = -47 < 0$$

The roots are unreal (complex).

4) $s(-s + 6) + 9 = -2s^2$

$$b^2 - 4ac = 0$$

The roots are real and equal.

5) $7a^2 + 5(a + 1) = 3$

$$b^2 - 4ac = -31 < 0$$

The roots are unreal (complex).

6) $v^2 + v - 1 = 0$

$$b^2 - 4ac = 5 > 0$$

The roots are real and unequal.

7) $w^2 + 6w = 2w - 4$

$$b^2 - 4ac = 0$$

The roots are real and equal.

8) $2(u^2 - u) - 3u = -8$

$$b^2 - 4ac = -39 < 0$$

The roots are unreal (complex).