Name : _____

Nature of the Roots

ES1

For the quadratic equation $ax^2 + bx + c = 0$,

If $b^2 - 4ac > 0$, the roots are real and unequal.

If $b^2 - 4ac = 0$, the roots are real and equal.

If $b^2 - 4ac < 0$, the roots are unreal(complex).

Find the nature of the roots using the discriminant.

1) $2s^2 + 9 = 0$

2) $k^2 + 4k + 4 = 0$

3) $5g^2 + 2g - 3 = 0$

4) $4x^2 - 3x + 2 = 0$

5) $8u^2 + 5u = 0$

6) $3p^2 + 7p + 8 = 0$

7) $9m^2 - 6m + 1 = 0$

8) $7h^2 - 5 = 0$

Name : _____

Answer key

Nature of the Roots

ES1

For the quadratic equation $ax^2 + bx + c = 0$,

If $b^2 - 4ac > 0$, the roots are real and unequal.

If $b^2 - 4ac = 0$, the roots are real and equal.

If $b^2 - 4ac < 0$, the roots are unreal(complex).

Find the nature of the roots using the discriminant.

1) $2s^2 + 9 = 0$

$b^2 - 4ac = -72 < 0$

The roots are unreal(complex).

2) $k^2 + 4k + 4 = 0$

$b^2 - 4ac = 0$

The roots are real and equal.

3) $5g^2 + 2g - 3 = 0$

$b^2 - 4ac = 64 > 0$

The roots are real and unequal.

4) $4x^2 - 3x + 2 = 0$

$b^2 - 4ac = -23 < 0$

The roots are unreal(complex).

5) $8u^2 + 5u = 0$

$b^2 - 4ac = 25 > 0$

The roots are real and unequal.

6) $3p^2 + 7p + 8 = 0$

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

The roots are unreal(complex).

7) $9m^2 - 6m + 1 = 0$

$b^2 - 4ac = 0$

The roots are real and equal.

8) $7h^2 - 5 = 0$

$b^2 - 4ac = 140 > 0$

The roots are real and unequal.