

Discriminant

Determine the number of real solutions for each quadratic equation without solving.

a) $p^2 + 7p + 33 = 8 - 3p$

b) $7x^2 + 2x + 5 = 0$

c) $2y^2 + 10y = y^2$

d) $4z^2 + 9 = -4z$

e) $b^2 - 4b + 3 = 0$

f) $2n^2 + 7 = -4n + 5$

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

h) $4q + 7 = q^2 - 5q + 1$

Discriminant

Determine the number of real solutions for each quadratic equation without solving.

a) $p^2 + 7p + 33 = 8 - 3p$

$$a = 1, b = 10, c = 25$$

$$10^2 - 4(1)(25) = 0$$

one real solution

b) $7x^2 + 2x + 5 = 0$

$$a = 7, b = 2, c = 5$$

$$2^2 - 4(7)(5) = -136$$

no real solutions

c) $2y^2 + 10y = y^2$

$$a = 1, b = 6, c = 3$$

$$6^2 - 4(1)(3) = 24$$

two real solutions

d) $4z^2 + 9 = -4z$

$$a = 4, b = 4, c = 9$$

$$4^2 - 4(4)(9) = -128$$

no real solutions

e) $b^2 - 4b + 3 = 0$

$$a = 1, b = -4, c = 3$$

$$(-4)^2 - 4(1)(3) = 4$$

two real solutions

f) $2n^2 + 7 = -4n + 5$

$$a = 2, b = 4, c = 2$$

$$(4)^2 - 4(2)(2) = 0$$

one real solution

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

$$a = -2, b = -1, c = -5$$

$$(-1)^2 - 4(-2)(-5) = -39$$

no real solutions

h) $4q + 7 = q^2 - 5q + 1$

$$a = -1, b = 9, c = 6$$

$$(9)^2 - 4(-1)(6) = 105$$

two real solutions