

Find the discriminant on the quadratic equation and give the number and type of solutions of the equation.

1) $x^2 - 8x + 16 = 0$

2) $s^2 + 7s + 11 = 0$

3) $-4w^2 + w - 14 = 0$

Discriminant: 0

Discriminant: 5

Discriminant: -223

Types of Sol.: 1 Double Root

Types of Sol.: 2 Reals

Types of Sol.: 2 imaginary

4) $5x^2 + 20x + 21 = 0$

5) $5x^2 + 16x = 11x - 3x^2$

6) $9r^2 + 2r + 1 = 8r$

Discriminant: -20

Discriminant: 25

Discriminant: 0

Types of Sol.: 2 imaginary

Types of Sol.: 2 real solut

Types of Sol.: 1 Double Root

7) What is the equation of the Quadratic Formula?

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Use the quadratic formula to solve the equation. Make sure to simplify all radicals and answers. SHOW ALL WORK. No decimals.

8) $3x^2 - 12x = -12$

9) $-3x^2 = 6x - 10$

10) $x^2 + 6x = -15x$

$\{3 \text{ DR}\}$

$\left\{ \frac{3 \pm \sqrt{39}}{-3} \text{ or } -1 \pm \frac{\sqrt{39}}{3} \right\}$

$\{0, -21\}$

11) $7x - 5 + 12x^2 = -3x$

12) $6 - 2x^2 = 9x + 15$

13) ~~$4x^2 - 3x - 2 = 0$~~
 $-2x^2 + 9x - 11 = 0$

$\left\{ \frac{-5}{12} \pm \frac{\sqrt{85}}{12} \right\}$

$\left\{ -\frac{9}{4} \pm \frac{\sqrt{41}}{4} \right\}$

$\left\{ \frac{9}{4} \pm \frac{i\sqrt{7}}{4} \right\}$

Application. Leave answers in decimal form.

14) The height, h , in feet of an object above the ground is given by $h(t) = -16t^2 + 64t + 190, t \geq 0$ where t is the time in seconds. Find the time it takes the object to strike the ground.

0 to 5.98 seconds