The Discriminant

In the quadratic formula, the expression **$b^2 - 4ac$** under the radical sign is called the **discriminant** of the associated equation $ax^2 + bx + c = 0$.

You can use the discriminant of a quadratic equation to determine the equation's number and type of solutions.

1. If $b^2 - 4ac < 0$, the equation has two imaginary solutions.
2. If $b^2 - 4ac = 0$, the equation has one real solution.
3. If $b^2 - 4ac > 0$, the equation has two real solutions.

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

a. $x^2 - 6x + 10 = 0$ $(-6)^2 - 4(1)(10)$

$36 - 40$

Disc: -4 -4 2 imag.

b. $x^2 - 6x + 9 = 0$

Disc: 0 1 Real

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

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

a. $9x^2 + 6x + 1 = 0$

b. $9x^2 + 6x - 4 = 0$

c. $9x^2 + 6x + 5 = 0$ Disc.: -144 2 imag

Assignment:

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