10.3 The Quadratic Formula

$$ax^2 + bx + c = 0$$

QUADRATIC FORMULA

A quadratic equation written in standard form $ax^2 + bx + c = 0$ can be solved with the Quadratic Formula.

Example 1 Use the Quadratic Formula to solve the following.

a) $2x^2 + x - 2 = 0$

b) $-2x^2 = 4x - 3$

c) $(3x - 1)(x + 2) = 4x$

d) $4x^2 + 12x + 9 = 0$

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

f) $\frac{1}{6}x^2 - x + \frac{1}{2} = 0$

Quadratic equations can have _____ or _____solutions. You can determine the type and number of solutions by finding the _____.

Discriminant of a Quadratic Equation
The discriminant of a quadratic equation in the form $ax^2 + bx + c = 0$ is the value of the expression

Value of the Discriminant	Type and number of solutions

<u>Example 2</u> Determine the type and number Of solutions of each.

a) $x^2 + 5x + 10 = 0$

b) $x^2 + 6x + 9 = 0$

c) $x^2 + 6x + 8 = 0$

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