

Algebra 1
Quadratic Equations and Functions
Example 3

Using the discriminant, determine the number of solutions each of the following quadratics has:

1. $2x^2 - 9x + 12$

2. $6x^2 + 6x + 1$

3. $4x^2 - 8x + 4$

DISCRIMINANT = $b^2 - 4ac$

IF $b^2 - 4ac > 0$ THEN 2 SOLUTIONS

$b^2 - 4ac < 0$ NO SOLUTIONS

$b^2 - 4ac = 0$ 1 SOLUTION

1. $b^2 - 4ac$
 $= (9)^2 - 4(2)(12)$

$= 81 - 8(12)$

$= 81 - 96$

$= -15 < 0$

\therefore NO SOLUTION

2. $b^2 - 4ac$
 $= 6^2 - 4(6)(1)$

$= 36 - 24$

$= 12 > 0$

\therefore 2 SOLUTIONS

3. $b^2 - 4ac$
 $= (-8)^2 - 4(4)(4)$

$= 64 - 64$

$= 0 = 0$

\therefore 1 SOLUTION