Name: _____

Quadratic Ticket Out the Door

1. Solve by factoring.
$6x^2 + x - 12 = 0$

Factors_____

Solutions_____

2. Solve by completing the square.
$3x^2 + 18x - 18 = 0$

Solutions_____

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

3. Find the discriminant.
State the nature of the solutions.
Solve using the quadratic formula.
$2x^2 + 7x - 7 = 0$

Discriminant_____

Nature of sol._____

Solutions_____

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Quadratic Ticket Out the Door

Key

1. Solve by factoring.
$6x^2 + x - 12 = 0$

1, 72
2, 36
3, 24
4, 18
6, 12
8, 9

$-8 \cdot 9 = -72$
$-8 + 9 = 1$

order ✓
GCF ✓

$6x^2 - 8x + 9x - 12 = 0$
$2x(3x-4) + 3(3x-4)$
$(3x-4)(2x+3) = 0$
$x = 4/3 \mid x = -3/2$

Factors $(3x-4)(2x+3)$

Solutions $x = 4/3, -3/2$

2. Solve by completing the square.
$3x^2 + 18x - 18 = 0$

$x^2 + 6x - 6 = 0$
$x^2 + 6x + 9 = 6 + 9$
$(x+3)^2 = 15$
$\sqrt{(x+3)^2} = \pm\sqrt{15}$
$x + 3 = \pm\sqrt{15}$
$x = -3 \pm \sqrt{15}$

$\left(\frac{b}{2}\right)^2 = \left(\frac{6}{2}\right)^2 = 3^2 = 9$

Solutions $-3 \pm \sqrt{15}$

3. Find the discriminant.
State the nature of the solutions.
Solve using the quadratic formula.
$2x^2 + 7x - 7 = 0$

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

$a = 2$
$b = 7$
$c = -7$

$D = b^2 - 4ac = 7^2 - (4 \cdot 2 \cdot -7)$
$D = 105 > 0$, 2 Real

$x = \frac{-7 \pm \sqrt{105}}{2(2)} = \frac{-7 \pm \sqrt{105}}{4}$

Discriminant 105

Nature of sol. 2 Real since $D > 0$

Solutions
$\hookrightarrow \frac{-7 \pm \sqrt{105}}{4}$

Quadratic Ticket Out the Door

1. Solve by factoring.
$6x^2 + x - 12 = 0$

Factors _____

Solutions _____

2. Solve by completing the square.
$3x^2 + 18x - 14 = 0$

Solutions _____

3. Find the discriminant.
State the nature of the solutions.
Solve using the quadratic formula.
$2x^2 + 7x - 7 = 0$

Discriminant _____

Nature of sol. _____

Solutions _____