Algebra 2   Bellwork   Friday, November 14, 2014

1. Write this equation in Vertex Form: $y = x^2 - 16x + 13$

Find the exact solutions to each by completing the square.

2. $2x^2 + 48x - 28 = 0$ 3. $3x^2 - 7x - 1 = 0$

Algebra 2   Bellwork   Friday, November 14, 2014   Answers

1. Write this equation in Vertex Form: $y = x^2 - 16x + 13$

$$Y - 13 + 64 = x^2 - 16x + 64$$

$$Y + 51 = (x - 8)^2$$

$$\boxed{y = (x - 8)^2 - 51}$$

Find the exact solutions to each by completing the square.

2. $2x^2 + 48x - 28 = 0$ 3. $3x^2 - 7x - 1 = 0$

2.
$$\frac{2x^2 + 48x}{2} = \frac{28}{2}$$

$$x^2 + 24x + 144 = 14 + 144$$

$$\sqrt{(x + 12)^2} = \sqrt{158}$$

$$x + 12 = \pm\sqrt{158}$$

$$\boxed{x = -12 \pm \sqrt{158}}$$

3.
$$\frac{3x^2 - 7x}{3} = \frac{1}{3}$$

$$x^2 - \frac{7}{3}x + \frac{49}{36} = \frac{1}{3} + \frac{49}{36}$$

$$\sqrt{\left(x - \frac{7}{6}\right)^2} = \sqrt{\frac{61}{36}}$$

$$x - \frac{7}{6} = \frac{\pm\sqrt{61}}{6}$$

$$\boxed{x = \frac{7}{6} \pm \frac{\sqrt{61}}{6} = \frac{7 \pm \sqrt{61}}{6}}$$

$\frac{1}{3} \cdot \frac{12}{12} = \frac{12}{36}$

$\frac{12}{36} + \frac{49}{36}$

$\frac{61}{36}$