Algebra 2 Bellwork Wednesday, November 5, 2014

1. Find the **EXACT** coordinates of the vertex of this parabola: $y = 7x^2 - 4x + 11$

Solve each by factoring.

2. $32x^2 + 56x = 0$

3. $128x^2 + 72 = 192x$

Find the **EXACT** solutions by using square roots.

4. $18x^2 - 11 = 39$

5. $3(x + 7)^2 + 5 = 50$

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ANSWERS

1. Find the **EXACT** coordinates of the vertex of this parabola: $y = 7x^2 - 4x + 11$

LOS: $x = \frac{4}{2(7)} = \frac{4}{14} = \frac{2}{7}$

Vertex $\left(\frac{2}{7}, \frac{73}{7}\right)$

$7\left(\frac{2}{7}\right)^2 - 4\left(\frac{2}{7}\right) + 11$

$= 7\left(\frac{4}{49}\right) - 4\left(\frac{2}{7}\right) + 11$

$= \frac{4}{7} - \frac{8}{7} + 11$

$= \frac{4}{7} - \frac{8}{7} + \frac{77}{7}$

$\frac{73}{7}$

Solve each by factoring.

2. $32x^2 + 56x = 0$

$8x(4x + 7) = 0$

$x = 0, -7/4$

3. $128x^2 + 72 = 192x$

$128x^2 - 192x + 72 = 0$

$8(16x^2 - 24 + 9) = 0$

$8(4x - 3)(4x - 3) = 0$

$x = 3/4$

144

-12 -12

-24

| | 4x | -3 |
|---|---|---|
| 4x | $16x^2$ | -12x |
| -3 | -12x | +9 |

Find the **EXACT** solutions by using square roots.

4. $18x^2 - 11 = 39$

$+11 \quad +11$

$\frac{18x^2}{18} = \frac{50}{18}$

$\sqrt{x^2} = \frac{50}{18} = \sqrt{\frac{25}{9}}$

$x = \pm \frac{5}{3}$

5. $3(x + 7)^2 + 5 = 50$

$-5 \quad -5$

$\frac{3(x+7)^2}{3} = \frac{45}{3}$

$\sqrt{(x+7)^2} = \sqrt{15}$

$x + 7 = \pm\sqrt{15}$

$-7 \quad -7$

$x = -7 \pm \sqrt{15}$


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