

# Algebra 1 Bellwork Friday, May 20, 2016

Find all real EXACT solutions to each quadratic equation.

1.  $72x^2 - 31 = 19$

2.  $\frac{3x^2 - 6}{7} + 2 = 11$

3.  $6x^2 + 58 = 34$

4.  $337 - 3x^2 = 112$

Factor each completely.

5.  $12w^2 - 5w - 2$

6.  $24k^3 - 54k$

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Find all real EXACT solutions to each quadratic equation.

**Answers**

$$\begin{aligned} 1. \quad & 72x^2 - 31 = 19 \\ & +31 \quad +31 \\ & \hline 72x^2 = 50 \\ & \frac{72x^2}{72} = \frac{50}{72} \\ & x^2 = \frac{50}{72} \end{aligned}$$

$$\begin{aligned} & \sqrt{x^2} = \sqrt{\frac{25}{36}} \\ & x = \pm \frac{5}{6} \end{aligned}$$

$$3. \quad 6x^2 + 58 = 34$$

$$-58 \quad -58$$

$$\begin{aligned} & \frac{6x^2}{6} = -24 \\ & x^2 = -4 \end{aligned}$$

NO REAL SOLUTIONS

$$2. \quad \frac{3x^2 - 6}{7} + 2 = 11$$

$$\frac{3x^2}{3} = \frac{69}{3}$$

$$7. \quad \frac{3x^2 - 6}{7} = 9 \cdot 7$$

$$\sqrt{x^2} = \sqrt{23}$$

$$3x^2 - 6 = 63$$

$$x = \pm \sqrt{23}$$

$$4. \quad 337 - 3x^2 = 112$$

$$-337 \quad -337$$

$$\frac{-3x^2}{-3} = \frac{-225}{-3}$$

$$\sqrt{x^2} = \sqrt{75}$$

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

Factor each completely.

5.  $12w^2 - 5w - 2$

6.  $24k^3 - 54k$

$$= 6k(4k^2 - 9)$$

$$= 6k(2k \pm 3)$$

$$= \boxed{(4w + 1)(3w - 2)}$$