

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

1. $72x^2 - 31 = 19$
 $+31 +31$
 $72x^2 = 50$
 $\frac{72x^2}{72} = \frac{50}{72}$
 $x^2 = \frac{50}{72}$
 $\Rightarrow \sqrt{x^2} = \sqrt{\frac{25}{36}}$
 $x = \pm \frac{5}{6}$

3. $6x^2 + 58 = 34$
 $-58 -58$
 $6x^2 = -24$
 $\frac{6x^2}{6} = \frac{-24}{6}$
 $x^2 = -4$

NO REAL SOLUTIONS

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

7. $\frac{3x^2 - 6}{7} = 9$
 $3x^2 - 6 = 63$
 $+6 +6$

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

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

$x = \pm \sqrt{23}$

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

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

$\sqrt{x^2} = \sqrt{75}$
 $25 \cdot 3$

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

Factor each completely.

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

$= (4w + 1)(3w - 2)$

6. $24k^3 - 54k$

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

$= 6k(2k + 3)(2k - 3)$