

Sec. 10.4 - 10.6 Review

Give exact answers.

Solve each equation by taking square roots.

1) $9n^2 - 1 = 116$ Isolate n^2 .

2) $10v^2 - 5 = 285$

$$\begin{array}{r} +1 \quad +1 \\ \hline 9n^2 = 117 \\ \hline 9 \quad 9 \end{array}$$

$$n^2 = 13$$

$$\sqrt{n^2} = \pm\sqrt{13}$$

$$n = \pm\sqrt{13}$$

$$\text{or } n = \sqrt{13}, -\sqrt{13}$$

3) $8x^2 + 1 = 65$

4) $7x^2 + 9 = 37$

Solve each equation by completing the square.

5) $k^2 - 10k - 47 = 5$ Move constants to the opposite side.

6) $x^2 + 6x - 14 = -7$

$$\begin{array}{r} +47 \quad +47 \\ \hline k^2 - 10k = 52 \\ \hline +25 \quad +25 \end{array} \quad \left(\frac{10}{2}\right)^2 = 25$$

$$k^2 - 10k + 25 = 77$$

$$(k-5)^2 = 77$$

$$\sqrt{(k-5)^2} = \pm\sqrt{77}$$

$$k-5 = \pm\sqrt{77}$$

$$\begin{array}{r} +5 \quad +5 \\ \hline k = 5 \pm \sqrt{77} \end{array}$$

$$\text{or } k = 5 + \sqrt{77}, 5 - \sqrt{77}$$

7) $b^2 - 6b - 77 = 7$

8) $n^2 + 2n - 20 = 3$

Solve each equation with the quadratic formula.

9) $a^2 + 6a - 19 = -4$ *set equal to 0.*

10) $9p^2 - 4p + 9 = 11$

$$\begin{array}{r} +4 \quad +4 \\ \hline a^2 + 6a - 15 = 0 \end{array}$$

$a = 1, b = 6, c = -15$

$$a = \frac{-6 \pm \sqrt{6^2 - 4(1)(-15)}}{2(1)}$$

$$= \frac{-6 \pm \sqrt{36 + 60}}{2} = \frac{-6 \pm \sqrt{96}}{2}$$

$$= \frac{-6 \pm \sqrt{16 \cdot 6}}{2} = \frac{-6 \pm 4\sqrt{6}}{2}$$

$$a = -3 \pm 2\sqrt{6} \quad \text{or} \quad a = -3 + 2\sqrt{6}, -3 - \sqrt{6}$$

11) $6k^2 + 9k - 5 = 10$

12) $2x^2 - 5x - 5 = 2$

Answers to Sec. 10.4 - 10.6 Review

- 1) $\{\sqrt{13}, -\sqrt{13}\}$ 2) $\{\sqrt{29}, -\sqrt{29}\}$ 3) $\{2\sqrt{2}, -2\sqrt{2}\}$ 4) $\{2, -2\}$
5) $\{5 + \sqrt{77}, 5 - \sqrt{77}\}$ 6) $\{1, -7\}$ 7) $\{3 + \sqrt{93}, 3 - \sqrt{93}\}$
8) $\{-1 + 2\sqrt{6}, -1 - 2\sqrt{6}\}$ 9) $\{-3 + 2\sqrt{6}, -3 - 2\sqrt{6}\}$ 10) $\left\{\frac{2 + \sqrt{22}}{9}, \frac{2 - \sqrt{22}}{9}\right\}$
11) $\left\{1, -2\frac{1}{2}\right\}$ 12) $\left\{3\frac{1}{2}, -1\right\}$