

Name: Answers

Date: _____ Per: _____

WS – Solving Quadratic Equations by Square Roots & Factoring

Solve the following by square roots. (Clue: Isolate the squares first)

1) $3x^2 - 27 = 0$

$$\begin{aligned}
 &+27 \quad +27 \\
 &\frac{3x^2}{3} = \frac{27}{3} \\
 &x^2 = 9 \\
 &\boxed{x = \pm 3}
 \end{aligned}$$

2) $x^2 - 126 = 130$

$$\begin{aligned}
 &+126 \quad +126 \\
 &x^2 = 256 \\
 &\boxed{x = \pm 16}
 \end{aligned}$$

3) $(x-6)^2 = 25$

$$\begin{aligned}
 &x-6 = \pm 5 \\
 &\boxed{x = 1 \text{ and } 11}
 \end{aligned}$$

4) $(2x+1)^2 = 36$

$$\begin{aligned}
 &2x+1 = \pm 6 \\
 &2x+1 = -6 \qquad 2x+1 = 6 \\
 &2x = -7 \qquad 2x = 5 \\
 &\boxed{x = -3.5} \qquad \boxed{x = 2.5}
 \end{aligned}$$

Solve the following by factoring.

5) $x^2 - 12x + 35 = 0$

$$\begin{aligned}
 &(x-5)(x-7) = 0 \\
 &\boxed{x = 5 \text{ and } 7}
 \end{aligned}$$

6) $9x^2 - 16 = 0$

$$\begin{aligned}
 &(3x-4)(3x+4) = 0 \\
 &\boxed{x = \frac{4}{3} \text{ and } -\frac{4}{3}}
 \end{aligned}$$

7) $x^2 = 4x + 32$

$$\begin{aligned}
 &x^2 - 4x - 32 = 0 \\
 &(x-8)(x+4) = 0 \\
 &\boxed{x = -4 \text{ and } 8}
 \end{aligned}$$

8) $8u^2 - 2u = 0$

$$\begin{aligned}
 &2u(4u-1) = 0 \\
 &\boxed{u = 0 \text{ and } \frac{1}{4}}
 \end{aligned}$$

9) $x^2 - 14x = 32$

$$\begin{aligned}
 &x^2 - 14x - 32 = 0 \\
 &(x-16)(x+2) = 0 \\
 &\boxed{x = -2 \text{ and } 16}
 \end{aligned}$$

10) $x^2 - 14x + 49 = 0$

$$\begin{aligned}
 &(x-7)^2 = 0 \\
 &\boxed{x = 7}
 \end{aligned}$$