

## Solving Quadratic Equations By Factoring

Solve each equation by factoring.

1)  $(3n-2)(4n+1)=0$

$$\begin{array}{l} \downarrow \qquad \downarrow \\ 3n-2=0 \qquad 4n+1=0 \\ 3n=2 \qquad 4n=-1 \\ n=2/3 \qquad n=-1/4 \end{array}$$

$$n = -\frac{1}{4}, \frac{2}{3}$$

2)  $m(m-3)=0$

$$\begin{array}{l} \downarrow \qquad \downarrow \\ m=0 \qquad m-3=0 \\ \qquad \qquad m=3 \end{array}$$

$$m = 0, 3$$

3)  $(5n-1)(n+1)=0$

$$\begin{array}{l} \downarrow \qquad \downarrow \\ 5n-1=0 \qquad n+1=0 \\ 5n=1 \qquad n=-1 \\ n=1/5 \end{array}$$

$$n = -1, 1/5$$

4)  $(n+2)(2n+5)=0$

$$\begin{array}{l} \downarrow \qquad \downarrow \\ n+2=0 \qquad 2n+5=0 \\ n=-2 \qquad 2n=-5 \\ \qquad \qquad n=-5/2 \end{array}$$

$$n = -2, -5/2$$

5)  $3k^2 + 72 = 33k$

$$3k^2 - 33k + 72 = 0$$

$$3(k^2 - 11k + 24) = 0$$

$$3(k-8)(k-3) = 0$$

$$\begin{array}{l} \downarrow \qquad \downarrow \\ k-8=0 \qquad k-3=0 \\ k=8 \qquad k=3 \end{array}$$

$$k = 3, 8$$

6)  $n^2 = -18 - 9n$

$$n^2 + 9n + 18 = 0$$

$$n^2 + 9n + 18 = 0$$

$$(n+6)(n+3) = 0$$

$$\begin{array}{l} \downarrow \qquad \downarrow \\ n+6=0 \qquad n+3=0 \\ n=-6 \qquad n=-3 \end{array}$$

$$n = -3, -6$$

7)  $7v^2 - 42 = -35v$

$$7v^2 + 35v - 42 = 0$$

$$7(v^2 + 5v - 6) = 0$$

$$7(v+6)(v-1) = 0$$

$$\begin{array}{l} \downarrow \qquad \downarrow \\ v+6=0 \qquad v-1=0 \\ v=-6 \qquad v=1 \end{array}$$

$$v = 1, -6$$

8)  $k^2 = -4k - 4$

$$k^2 + 4k + 4 = 0$$

$$(k+2)(k+2) = 0$$

$$\begin{array}{l} \downarrow \qquad \downarrow \\ k+2=0 \qquad k+2=0 \\ k=-2 \qquad k=-2 \end{array}$$

$$k = -2$$

9)  $-2v^2 - v + 12 = -3v^2 + 6v$

$$v^2 - 7v + 12 = 0$$

$$(v-4)(v-3) = 0$$

$$\begin{array}{l} \downarrow \qquad \downarrow \\ v-4=0 \qquad v-3=0 \\ v=4 \qquad v=3 \end{array}$$

$$v = 3, 4$$

10)  $-4n^2 + 6n - 16 = -5n^2$

$$n^2 + 6n - 16 = 0$$

$$(n+8)(n-2) = 0$$

$$\begin{array}{l} \downarrow \qquad \downarrow \\ n+8=0 \qquad n-2=0 \\ n=-8 \qquad n=2 \end{array}$$

$$n = 2, -8$$