

8-1 Solve Quadratic Equations by Factoring

Solve each equation by factoring.

1) $a(a-2) = 0$

$a=0$ $a-2=0$
 $+2 +2$
 $a=2$

3) $(v-7)(v-5) = 0$

$v-7=0$ $v-5=0$
 $v=7$ $v=5$

5) $r^2 - 9 = 0$

$(r-3)(r+3) = 0$
 $r=3$ $r=-3$

7) $25x^2 - 10x - 8 = 0$

$(5x+2)(5x-4) = 0$
 $10x$
 $-20x$
 $5x+2=0$ $5x-4=0$
 $x = -\frac{2}{5}$ $x = \frac{4}{5}$

9) $6x^2 - 25x + 4 = 0$

$(6x-1)(x-4) = 0$
 $-1x$
 $-24x$
 $6x-1=0$ $x-4=0$
 $x = \frac{1}{6}$ $x = 4$

11) $2p^2 + 96 = 28p$

$\div 2 (2p^2 - 28p + 96) = 0 \div 2$
 $p^2 - 14p + 48 = 0$
 $(p-8)(p-6) = 0$
 $p=8$
 $p=6$

13) $r^2 = 1$

$r^2 - 1 = 0$
 $(r+1)(r-1) = 0$
 $r = -1$ $r = 1$

15) $4m^2 - 120 = -4m$

$\div 4 (4m^2 + 4m - 120) = 0 \div 4$
 $m^2 + m - 30 = 0$
 $(m+5)(m-6) = 0$
 $m = -5$
 $m = 6$

2) $(m-8)(5m-7) = 0$

$m-8=0$ $5m-7=0$
 $m=8$ $\frac{5m}{5} = \frac{7}{5}$ $m = \frac{7}{5}$

4) $p^2 - 9p + 8 = 0$

$(p-8)(p-1) = 0$
 $-8p$ $-9p$
 $-p$
 $p-8=0$ $p-1=0$
 $p=8$ $p=1$

6) $r^2 + 9r + 14 = 0$

$(r+7)(r+2) = 0$
 $r+7=0$ $r+2=0$
 $r = -7$ $r = -2$

8) $9k^2 - 3k - 2 = 0$

$(3k+1)(3k-2) = 0$
 $3k$
 $-6k$
 $3k+1=0$ $3k-2=0$
 $k = -\frac{1}{3}$ $k = \frac{2}{3}$

10) $b^2 = 6 + 5b$

$b^2 - 5b - 6 = 0$
 $(b-6)(b+1) = 0$
 $-6b$ $-5b$
 $1b$
 $b-6=0$ $b+1=0$
 $b=6$ $b=-1$

12) $n^2 - 9n = -20$

$n^2 - 9n + 20 = 0$
 $(n-5)(n-4) = 0$
 $n=5$ $n=4$

14) $8x^2 + 72 = 48x$

$\div 8 (8x^2 - 48x + 72) = 0 \div 8$
 $x^2 - 6x + 9 = 0$
 $(x-3)(x-3) = 0$
 $x=3$
 $x=3$

16) $n^2 = 2n$

$n^2 - 2n = 0$
 $n(n-2) = 0$
 $n=0$ $n=2$