

Solving Quadratic Equations by Factoring

Date _____ Period _____

Solve each equation by factoring.

1) $(k+1)(k-5)=0$

$k+1=0$ $k-5=0$

$k=-1$ $k=5$

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

$a+1=0$ $a+2=0$

$a=-1$ $a=-2$

} Factored form

3) $(4k+5)(k+1)=0$

$4k+5=0$ $k+1=0$

$4k=-5$ $k=-1$

$k=-\frac{5}{4}$

4) $(2m+3)(4m+3)=0$

$2m+3=0$ $4m+3=0$

$2m=-3$ $4m=-3$

$m=-\frac{3}{2}$ $m=-\frac{3}{4}$

5) $x^2-11x+19=-5$

$+5+5$

$x^2-11x+24=0$

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

$x-8=0$ $x-3=0$

$x=8$ $x=3$

7) $n^2-10n+22=-2$

6) $n^2+7n+15=5$

$-5-5$

$n^2+7n+10=0$

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

$n+2=0$ $n+5=0$

$n=-2$ $n=-5$

8) $n^2+3n-12=6$

$a \cdot b = 0$

$a \cdot b = 10$

9) $6n^2-18n-24=6$

$-6-6$

$6n^2-18n-24=0$

$\frac{-144}{-24 \cdot 6}$

$(6n^2-24) + (6n-24)=0$

$6n(n-4) + 6(n-4)$

$(6n+6)(n-4)=0$

$6n+6=0$ $n-4=0$

$6n=-6$

$n=-1$ $n=4$

$\frac{6n^2-18n-24}{6} = \frac{0}{6}$

$n^2-3n-4=0$

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

$n+1=0$ $n-4=0$

$n=-1$ $n=4$

10) $7r^2-14r-7=7$

$+7$

$7r^2-14r+7=0$

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

$(r-1)(r-1)=0$

$r-1=0$ $r-1=0$

$r=1$ $r=1$

$$11) n^2 + 8n = -15$$

$$13) -4k^2 - 8k - 3 = -3 - 5k^2$$

$$15) 3r^2 - 16r - 7 = 5$$

$$17) 7k^2 - 6k + 3 = 3$$

$$19) 7x^2 + 2x = 0$$

$$x(7x+2) = 0$$

$$x=0 \quad \begin{array}{l} 7x+2=0 \\ -2 \quad -2 \end{array}$$

$$7x = -2 \quad x = -\frac{2}{7}$$

$$21) 8x^2 + 21 = -59x$$

$$12) 5r^2 - 44r + 120 = -30 + 11r$$

$$\begin{array}{r} -11r + 20 \quad +30 - 11r \\ \hline \end{array}$$

$$5r^2 - 55r + 150 = 0$$

$$r^2 - 11r + 30 = 0$$

$$(r-6)(r-5) = 0$$

$$14) b^2 + 5b - 35 = 3b \quad r-6=0 \quad r-5=0$$

$$r=6 \quad r=5$$

$$16) 6b^2 - 13b + 3 = -3$$

$$\begin{array}{r} +3 \quad +3 \\ \hline \end{array}$$

$$6b^2 - 13b + 6 = 0$$

$$(6b^2 - 9b)(-4b + 6) = 0$$

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

$$18) 35k^2 - 22k + 7 = 4$$

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

$$3b-2=0 \quad 2b-3=0$$

$$3b=2 \quad 2b=3$$

$$b = \frac{2}{3} \quad b = \frac{3}{2}$$

$$20) 10b^2 = 27b - 18$$

$$22) 15a^2 - 3a = 3 - 7a$$