

NAME _____

DATE _____

SOLVE EQUATIONS BY FACTORING: Worksheet 1

Solve each equation by factoring.

1) $x^2 + 9x + 20 = 0$

2) $y^2 - 64 = 0$

3) $5x^2 + 5x - 30 = 0$

4) $t^2 = 81$

5) $w^2 - 9w + 14 = 0$

6) $r^2 - 5r = 6$

7) $2x^2 - 18 = 0$

8) $x^2 + 16x = -15$

9) $16y^2 = 9$

10) $-3q^2 - 9q + 30 = 0$

11) $4b^2 + 12 = 16b$

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

13) $x^3 - x = 0$

14) $c^2 + 9c + 18 = 0$

15) $9x^2 - 4 = 0$

16) $6f^2 - 6f = 12$

17) $2x^2 - 8x - 42 = 0$

18) $h^2 + 14h = -40$

19) $t^2 + 10t - 24 = 0$

20) $3b^2 + 3b - 90 = 0$

KEY

SOLVE EQUATIONS BY FACTORING: Worksheet 1

Solve each equation by factoring.

$$\begin{aligned} 1) \quad x^2 + 9x + 20 &= 0 \\ (x + 4)(x + 5) &= 0 \\ \{-5, -4\} \end{aligned}$$

$$\begin{aligned} 2) \quad y^2 - 64 &= 0 \\ (x + 8)(x - 8) &= 0 \\ \{-8, 8\} \end{aligned}$$

$$\begin{aligned} 3) \quad 5x^2 + 5x - 30 &= 0 \\ 5(x - 2)(x + 3) &= 0 \\ \{-3, 2\} \end{aligned}$$

$$\begin{aligned} 4) \quad t^2 &= 81 \\ t^2 - 81 &= 0 \\ (t + 9)(t - 9) &= 0 \\ \{-9, 9\} \end{aligned}$$

$$\begin{aligned} 5) \quad w^2 - 9w + 14 &= 0 \\ (w - 2)(w - 7) &= 0 \\ \{2, 7\} \end{aligned}$$

$$\begin{aligned} 6) \quad r^2 - 5r &= 6 \\ r^2 - 5r - 6 &= 0 \\ (r + 1)(r - 6) &= 0 \\ \{-1, 6\} \end{aligned}$$

$$\begin{aligned} 7) \quad 2x^2 - 18 &= 0 \\ 2(x^2 - 9) &= 0 \\ 2(x + 3)(x - 3) &= 0 \\ \{-3, 3\} \end{aligned}$$

$$\begin{aligned} 8) \quad x^2 + 16x &= -15 \\ x^2 + 16x + 15 &= 0 \\ (x + 15)(x + 1) &= 0 \\ \{-15, -1\} \end{aligned}$$

$$\begin{aligned} 9) \quad 16y^2 &= 9 \\ 16y^2 - 9 &= 0 \\ (4y + 3)(4y - 3) &= 0 \\ \left\{ -\frac{3}{4}, \frac{3}{4} \right\} \end{aligned}$$

$$\begin{aligned} 10) \quad -3q^2 - 9q + 30 &= 0 \\ -3(q^2 + 3q - 10) &= 0 \\ -3(q + 5)(q - 2) &= 0 \\ \{-5, 2\} \end{aligned}$$

11) $4b^2 + 12 = 16b$

$$\begin{aligned}4b^2 - 16b + 12 &= 0 \\4(b^2 - 4b + 3) &= 0 \\4(b-1)(b-3) &= 0 \\ \{1,3\}\end{aligned}$$

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

$$\begin{aligned}x(x+7) &= 0 \\ \{-7,0\}\end{aligned}$$

13) $x^3 - x = 0$

$$\begin{aligned}x(x^2 - 1) &= 0 \\x(x+1)(x-1) &= 0 \\ \{-1,0,1\}\end{aligned}$$

14) $c^2 + 9c + 18 = 0$

$$\begin{aligned}(c+6)(c+3) &= 0 \\ \{-6,-3\}\end{aligned}$$

15) $9x^2 - 4 = 0$

$$\begin{aligned}(3x+2)(3x-2) &= 0 \\ \left\{-\frac{2}{3}, \frac{2}{3}\right\}\end{aligned}$$

16) $6f^2 - 6f = 12$

$$\begin{aligned}6f^2 - 6f - 12 &= 0 \\6(f^2 - f - 2) &= 0 \\6(f+1)(f-2) &= 0 \\ \{-1,2\}\end{aligned}$$

17) $2x^2 - 8x - 42 = 0$

$$\begin{aligned}2(x^2 - 4x - 21) &= 0 \\2(x+3)(x-7) &= 0 \\ \{-3,7\}\end{aligned}$$

18) $h^2 + 14h = -40$

$$\begin{aligned}h^2 + 14h + 40 &= 0 \\(h+10)(h+4) &= 0 \\ \{-10,-4\}\end{aligned}$$

19) $t^2 + 10t - 24 = 0$

$$\begin{aligned}(t+12)(t-2) &= 0 \\ \{-12,2\}\end{aligned}$$

20) $3b^2 + 3b - 90 = 0$

$$\begin{aligned}3(b^2 + b - 30) &= 0 \\3(b+6)(b-5) &= 0 \\ \{-6,5\}\end{aligned}$$