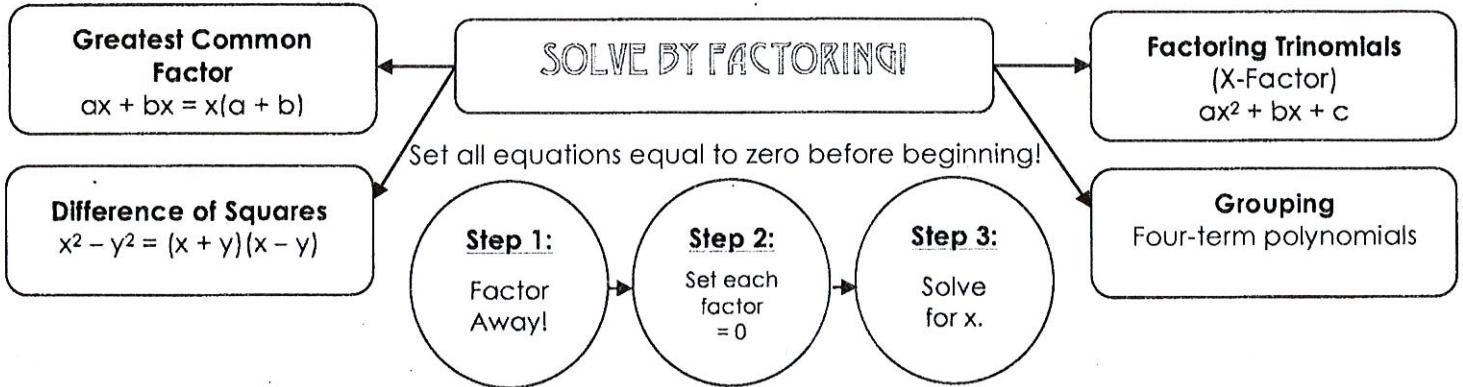


Solving by Factoring



Directions: Solve each of the following by factoring. Check your solutions by graphing.

1. $x(x+4) = 0$ *factored form* 2. $(2x+1)(3x-4) = 0$ *Factored Form* 3. $x(3x+9) = 0$

$$\begin{array}{l} x=0 \quad x+4=0 \\ \quad \quad -4 \quad -4 \\ \hline x=-4 \end{array}$$

$$\begin{array}{l} 2x+1=0 \quad 3x-4=0 \\ \quad -1 \quad \quad +4 \quad +4 \\ \hline 2x=-1 \quad 3x=4 \\ \frac{2x}{2} = \frac{-1}{2} \quad \frac{3x}{3} = \frac{4}{3} \\ x = -\frac{1}{2} \quad x = \frac{4}{3} \end{array}$$

$$\begin{array}{l} x=0 \quad 3x+9=0 \\ \quad \quad 3x=-9 \\ \quad \quad \frac{3x}{3} = \frac{-9}{3} \\ \quad \quad x=-3 \end{array}$$

x-int. $(0,0)$ and $(-4,0)$

4. $x^2 - 64 = 0$ *standard form*

5. $x^2 = -121$ *standard form*

6. $3x^2 - 81 = 2x^2$

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

$$\begin{array}{l} x-8=0 \quad x+8=0 \\ x=8 \quad \quad x=-8 \end{array}$$

x-int $(8,0)$ and $(-8,0)$

$$0 = x^2 - 121 \text{ standard form}$$

$$0 = (x+11)(x-11)$$

$$\begin{array}{l} x+11=0 \quad x-11=0 \\ x=-11 \quad x=11 \end{array}$$

x-int. $(11,0)$ and $(-11,0)$

$$x^2 - 81 = 0$$

$$\begin{array}{l} (x-9)(x+9) = 0 \\ x-9=0 \quad x+9=0 \\ x=+9 \quad x=-9 \end{array}$$

x-int. $(9,0)$ and $(-9,0)$

10. $3x^2 + 31x + 36 = 0$ *standard form*

11. $2x^2 - 18x = -24x$

12. $5x^2 + 32x = -28x$

~~108~~
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$$\begin{array}{l} 2x^2 + 6x = 0 \\ \frac{2x^2}{2x} + \frac{6x}{2x} = 0 \end{array}$$

$$2x(x+3) = 0$$

$$\begin{array}{l} 2x=0 \quad x+3=0 \\ x=0 \quad x=-3 \end{array}$$

x-int $(0,0)$ and $(-3,0)$

13. $6x^2 + 11x + 4 = 0$ *standard form*

14. $8x^2 + 18x + 7 = 0$

15. $45x^2 + 56x = -16$