

9.7: Factor Special Products (REG)

Goals: *Factor difference of two squares

****RECALL****

$$(a + b)(a - b) = a^2 - b^2$$

Factor:

Ex: $y^2 - 16$

$$(y + 4)(y - 4)$$

Ex: $x^2 - 9$

$$(x - 3)(x + 3)$$

Ex: $25m^2 - 16$

$$(5m - 4)(5m + 4)$$

Ex: $x^2 - 49y^2$

$$(x - 7y)(x + 7y)$$

Ex: $8 - 18n^2$

$$\begin{aligned} 2(4 - 9n^2) \\ 2(2 + 3n)(2 - 3n) \end{aligned}$$

Ex: $4y^2 - 64$

$$\begin{aligned} 4(y^2 - 16) \\ 4(y + 4)(y - 4) \end{aligned}$$

Ex: $64c^2 - 16$

$$\begin{aligned} 16(c^2 - 1) \\ 16(c - 1)(c + 1) \end{aligned}$$

Ex: $x^2 - 81y^2$

$$(x + 9y)(x - 9y)$$

Ex: $12 - 48m^2$

$$\begin{aligned} 12(1 - 4m^2) \\ 12(1 + 2m)(1 - 2m) \end{aligned}$$

Solve:

Ex: $w^2 - 16 = 0$

$$\begin{aligned} (w + 4)(w - 4) &= 0 \\ w &= 4, w = -4 \end{aligned}$$

Ex: $n^2 - 81 = 0$

$$\begin{aligned} (n - 9)(n + 9) &= 0 \\ n &= 9, n = -9 \end{aligned}$$

Ex: $x^2 = 49$

$$\begin{aligned} x^2 - 49 &= 0 \\ (x + 7)(x - 7) &= 0 \\ x &= 7, x = -7 \end{aligned}$$