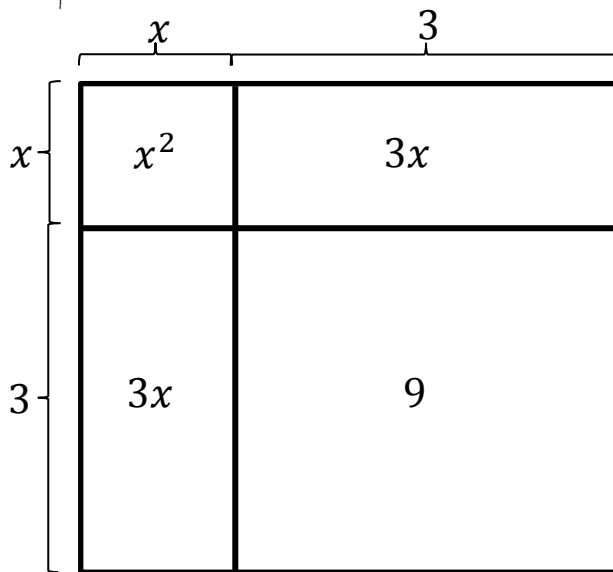


Special Products

Squaring a binomial:

Consider $(x + 3)^2$

Geometric Interpretation



Area of a Square = s^2 , s = side

So, here $s = x + 3$

$$\begin{aligned} A &= (x + 3)^2 \\ &= x^2 + 3x + 3x + 9 \\ &= \underline{\hspace{2cm}} \end{aligned}$$

Algebraic Approach

$$\begin{aligned} (x + 3)^2 &= (x + 3)(x + 3) \\ &= \\ &= \\ &= \end{aligned}$$

Example 1:

Simplify:

a.) $(x + 4)^2$

b.) $(x - 2)^2$

c.) $(2x + 1)^2$

d.) $(2a + b)^2$

Multiplying Conjugates

Example 2:

a.) $(x + 2)$ and $(x - 2)$ are conjugates.

b.) $(x - 3)$ and () are conjugates.

c.) $(3x + 1)$ and () are conjugates.

Example 3:

$$\begin{aligned} \text{a.) } & (x + 2)(x - 2) \\ &= x(x + 2) - 2(x + 2) \\ &= x^2 + 2x - 2x - 4 \\ &= x^2 - 4 \end{aligned}$$

Notice that when multiplying conjugates, the middle terms cancel out.

$$\text{b.) } (x - 3)(x + 3)$$

$$\text{c.) } (2x + 1)(2x - 1)$$

$$\text{d.) } (3a + 4)(3a - 4)$$

Simplify:

1. $(x + 9)^2$

2. $(x - 9)^2$

3. $(x + 9)(x - 9)$

4. $(2x + 1)^2$

5. $(2x + 1)(2x - 1)$