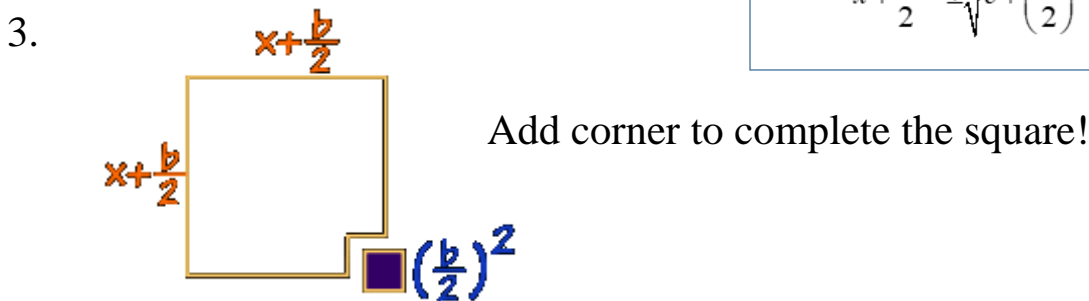
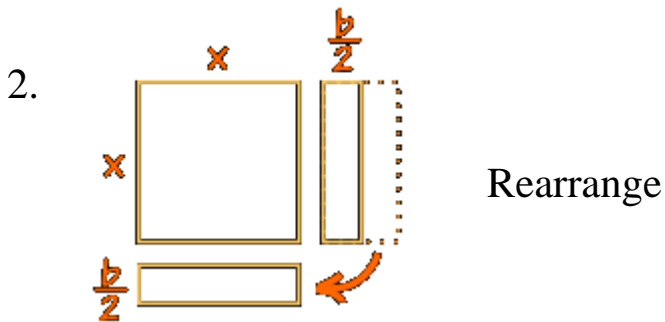
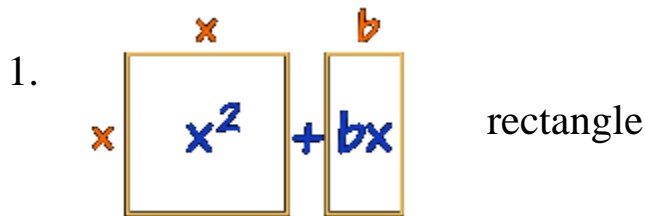


Unit 4 Notes

Unit 4.1 & 4.2 Completing the Square



Completing the Square

Solve Quadratics

1. If $a \neq 1$, divide the quadratic by a .

2. Write the quadratic in the form

$$x^2 + bx = c$$

3. Add $(b/2)^2$ to both sides of the equation.

$$x^2 + bx + \left(\frac{b}{2}\right)^2 = c + \left(\frac{b}{2}\right)^2$$

4. Factor the left side of the equation into a perfect square.

$$\left(x + \frac{b}{2}\right)^2 = c + \left(\frac{b}{2}\right)^2$$

5. Square root both sides of the equation and solve for x .

$$x + \frac{b}{2} = \pm \sqrt{c + \left(\frac{b}{2}\right)^2}$$

Unit 4.3 Quadratic Formula

$$ax^2 + bx + c = 0 \quad x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Unit 4.5 Complex Numbers, (imaginary numbers)

$$\sqrt{-1} = i$$

“i” stands for imaginary number or complex numbers, which is outside the real number system. Imaginary numbers are used in real-life applications, such as electricity, as well as quadratic equations. In quadratic planes, imaginary numbers show up in equations that don't touch the x axis. Imaginary numbers become particularly useful in advanced calculus.