*x*2 − 6*x* + 9 is an example of a perfect square trinomial and can be written as (*x* − 3)2 .



*x*

*x*

*x*2

1

1

-*x*

-*x*

-*x*

-*x*

-*x*

-*x*

1

1

1

1

1

1

1

-3

-3



**Why?**



exercise: Fill in the blank with the term that will produce a perfect square trinomial and then write the trinomial as a square.



a) *x*2  −  10*x* +  \_\_\_\_\_ =



b) *x*2  +  16*x* +  \_\_\_\_\_ =



**SOLVING QUADRATIC EQUATIONS BY COMPLETING THE SQUARE**

1) Completing the square in a quadratic equation and 2) applying the Square Root Principle allows us to solve the equation.



example: Solve *x*2 − 6*x* + 1 = 0 by completing the square.



* + Set up the equation for completing the square.



* + Complete the square.



* + Write the trinomial as a square; simplify.



* + Apply the Square Root Principle.



* + Simplify the radicals.



* + Solve for *x*.



example: Solve 3*x*2 + 10*x* + 2 = 0 .



exercise: Solve the following equations by completing the square.



a) 2*x*2  +  8*x*  −  3  =  0 b) 2*x*2  −  *x*  +  2  =  0



*DO NOT PRINT*

*x*2  −  10*x*  −  20  =  0 4*x*2  −  24*x*  +  29  =  0