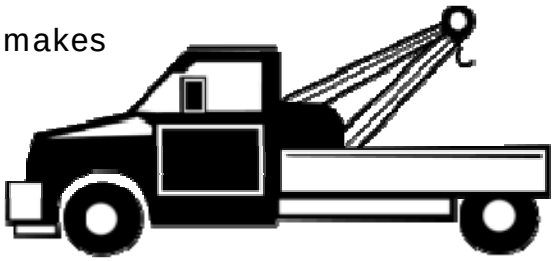
Name _____ Date _____

Quadratic Equations: Completing the Square - Step-by-Step Lesson

Complete the square and fill in the number that makes the polynomial a perfect-square quadratic.



$t^2 + 6t + \_\_\_\_\_$

Explanation:

Perfect square quadratic polynomials follow the standard form of:

$a^2 + bx + c$

We can complete the square by adding $(\frac{b}{2})^2$ with a quadratic expressions such as $a^2 + bx$.

Now we will add $(\frac{b}{2})^2$ to complete the square.

$$t^2 + 6t + (\frac{b}{2})^2$$

$$= t^2 + 6t + (\frac{6}{2})^2$$

$$= t^2 + 6t + (3)^2$$

$$= t^2 + 6t + 9$$

So, this quadratic can be written as a square, $(t + 3)^2$, and therefore it is a perfect-square quadratic.

So, the number needed to complete the square was 9.