

### Example 4 More applications

For a period of 48 months, the average monthly operating cost,  $C$ , can be approximated by the model

$$C = 0.55t^2 + 550$$

where  $t$  is the number of months. During which month was the average operating cost \$1430?

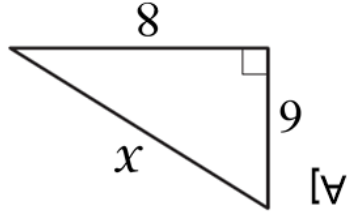
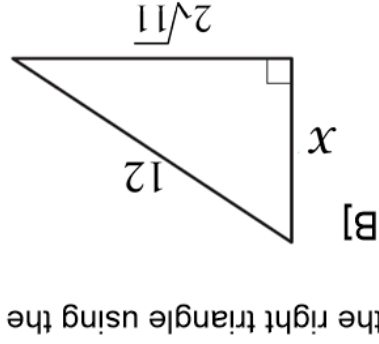
# Square Root Method

Only works with quadratics in the form

$$ax^2 + c = 0$$

or

$$a(x - h)^2 + k = 0$$



Find the length of the missing side of the right triangle using the Pythagorean Theorem  $a^2 + b^2 = c^2$

Applications using square roots

### Example 3

**A]**  $3x^2 + 5 = 41$

Step 1: Move everything but the quantity being squared to the other side of the equal sign

Step 2: Square root both sides of the equation. Don't forget the  $\pm$  when you square root a squared variable!

Step 3: Simplify

Step 4: Check answers

**B]**  $2(x^2 - 8) + 5 = 25$

### Example 1

Solving quadratics using square roots

$$ax^2 + c = 0$$

$$a(x - h)^2 + k = 0$$

Solving quadratics using square roots

**A]**  $\frac{1}{5}(x + 3)^2 = 15$

Step 1: Move everything but the quantity being squared to the other side of the equal sign

Step 2: Square root both sides of the equation. Don't forget the  $\pm$  when you square root a squared variable!

Step 3: Simplify

Step 4: Check answers

**B]**  $(6x - 3)^2 - 5 = 22$