

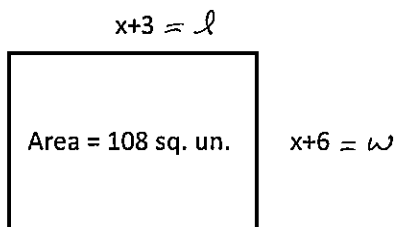
Algebra 1 ECA Remediation Day 34

Geometric Application of Quadratic Equations

Use quadratic equations to solve word problems that involve squares and rectangles.

Example #1

Solve for x.



$$l \cdot w = A$$

$$(x+3)(x+6) = 108$$

FOIL

$$x^2 + 6x + 3x + 18 = 108$$

$$x^2 + 9x + 18 = 108$$

$-108 \quad -108$

$$x^2 + 9x - 90 = 0$$

Use quadratic formula to solve:

$a=1 \quad b=9 \quad c=-90$

$$x = \frac{-9 \pm \sqrt{9^2 - 4(1)(-90)}}{2(1)}$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$x = 6$ AND -15

$$= \frac{-9 \pm \sqrt{441}}{2}$$

$x = 6$

$$= \frac{-9 + 21}{2} = \frac{12}{2} = 6 \quad \text{OR} \quad \frac{-9 - 21}{2} = \frac{-30}{2} = -15$$

* -15 is not a real solution because it would make the side lengths negative, which is impossible.