

Honors Algebra 2 Polynomial Applications Problems ~~Fall 2016~~ 1-31-17

1. You have a 24ft x 16ft rectangular pool. A city ordinance requires you to have a deck around the entire pool that is to have at least twice the area of the pool. You have decided to pour a concrete deck of uniform width all the way around the pool and to reduce the cost of doing this you are going to make the area of the deck exactly twice the area of the pool.

Write an equation and use this to find the width of the deck that is to be placed around the pool with an area that is twice the area of the pool.

Labeled drawing of the situation:

Equation:

Round to the nearest inch.

Width of deck =

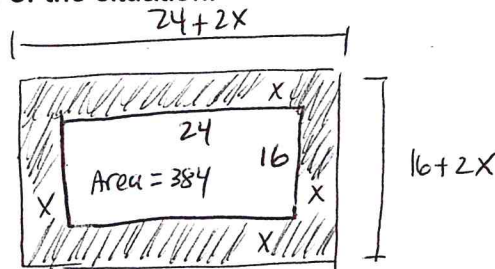
Honors Algebra 2 Polynomial Applications Problems

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Write an equation and use this to find the width of the deck that is to be placed around the pool with an area that is twice the area of the pool.

Labeled drawing of the situation:



Equation:

$$\text{Area of deck} = 2(384)$$

$$\text{Big Rect} - \text{Small Rect} = 768$$

$$(24+2x)(16+2x) - 384 = 768$$

$$4x^2 + 80x + 384 - 384 = 768$$

$$4x^2 + 80x + 0 = 768$$

$$\frac{4x^2 + 80x - 768}{4} = 0$$

$$x^2 + 20x - 192 = 0$$

Round to the nearest inch.

Width of deck = 7 ft 1 in

use quadratic
Formula

$$b^2 - 4ac = 1168$$

$$x = \frac{-20 \pm \sqrt{1168}}{2}$$

$$x = 7.088 \text{ or } -27.088$$

$$7.088 \text{ ft} \approx 7 \text{ ft } 1 \text{ in}$$

$$(24+2x)(16+2x) = 4x^2 + 80x + 384$$

		24	+ 2x
	16	384	+ 32x
+ 2x	16	+ 48x	+ 4x^2