

Algebra I

4-10

Problems Without Solutions

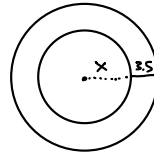
→ Shape is not specified.
 1) A pool is surrounded by a deck 3.5 m wide. Find the area of the pool if the area of the deck is 301 m².

$$\text{Frame} = \text{whole} - \text{hole}$$

This problem cannot be solved specifically because the shape of the pool is not given. However, if we choose a shape, we can solve problem.

2015-2016 Situational solution.

Do it as a circle!
 (by popular demand)



	π	r^2	= A
whole	3.14	$(x+3.5)^2$	$3.14(x+3.5)^2$
hole	3.14	x^2	$3.14x^2$

Let x = radius

$$\text{Frame} = \text{whole} - \text{hole}$$

$$301 = 3.14(x+3.5)^2 - 3.14x^2$$

$$301 = 3.14(x^2 + 7x + 12.25) - 3.14x^2$$

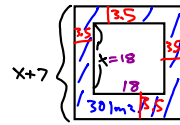
$$301 = 3.14x^2 + 21.98x + 37.68 - 3.14x^2$$

$$301 - 37.68 = 21.98x + 37.68 - 37.68$$

$$\frac{263.32}{21.98} = \frac{21.98x}{21.98} \quad x = 11.98 \text{ m}$$

2014-2015 Situational Solution

let x = side of pool



$$A = 18 \cdot 18 = 324 \text{ m}^2$$

	l	w	= A
whole	$x+7$	$x+7$	$(x+7)(x+7)$
hole	x	x	x^2

$$\text{Frame} = \text{whole} - \text{hole}$$

$$301 = (x+7)(x+7) - x^2$$

$$301 = x^2 + 7x + 7x + 49 - x^2$$

$$301 = 14x + 49$$

$$301 - 49 = 14x$$

$$\frac{252}{14} = \frac{14x}{14}$$

$$18 = x$$

5) Ben weighs 30 lb more than Ann, and their canoe weighs twice as much as Ben. If their canoe weighed 20 lb less, its weight would equal the sum of Ann's and Ben's weights. How much do Ann, Ben, and the canoe each weigh?

	weight		
Ben	$x + 30$		
Ann	x		
Canoe	$2(x + 30)$		

Let x = Ann's weight

$$\text{Canoe} - 20 = \text{Ann} + \text{Ben}$$

$$2(x+30) - 20 = x + x + 30$$

$$2x + 60 - 20 = 2x + 30$$

$$2x + 40 = 2x + 30$$

$$40 = 30$$

∅

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