# ROUND #1

Given the figure below, find $x$, where $x$ is the radius of the circle.

# ROUND #2

Solve the following system of equations.  Write your solution as an ordered triplet.

$$\log_2 x \quad \log_4 y \quad \log_4 z \quad 2$$
$$\log_3 \quad\;\; \log_9 \quad\;\; \log_9 \quad\;\;\; 2$$
$$\log_4 \quad\;\; \log_{16} \quad\; \log_{16} \quad\;\; 2$$

# ROUND #4

Consider the figure:

Suppose that *A* is the center of the small square, one side of the large square has length 8 units, one side of the small square is 6 units, and $BC$ 4 units. Compute the area of the shaded region

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# ROUND #6

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# ROUND #8

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*April 1, 2017*

Determine the measure of angle    shown in the figure below between the hands of an analog clock at 4:42.

# ROUND #10

A smaller cylinder of radius $r$ rolls without slipping, in the counter clockwise direction, on a larger cylinder of radius $R$ with center $O$, as shown in the figure below. If $R$ $3\,meters$ and $r$ $1\,meter$, how many complete rotations does the smaller cylinder undergo as it makes one complete transit around the larger cylinder?