The formula for finding the volume of a cylinder is:
V=area of base x height. Since the base of the cylinder is a circle, we can use the formula for area of a circle and multiple it times the height of the cylinder.

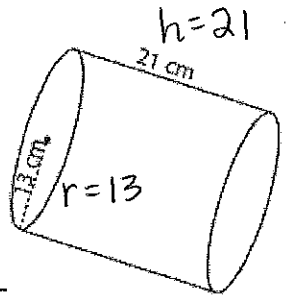
$$V = (\pi r^2)(h)$$

4. A cylinder with a radius of 5 cm and a height of 12 cm has a volume of 300π cm^2. Which change in dimensions of the cylinder would cause a greater change in volume: doubling the height or doubling the radius? Show your work or explain your answer.

*** It is important to note that just like estimating non perfect square roots, sometimes we can estimate the volume by using an estimated value (3.14) for π.*

Practice: Find the volume of the figures below. For even numbers, use 3.14 for pi to estimate the volume.

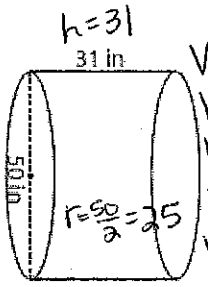
1)



$V=\pi r^2 h$
$V=\pi \cdot 13^2 \cdot 21$
$V=\pi \cdot 169 \cdot 21$
$V=3549\pi$
$V\approx 3549 \times 3.14$

Volume = 11143.86 cm^3

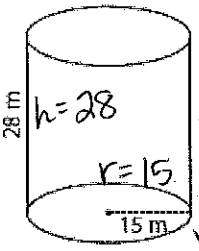
2)



$V=\pi r^2 h$
$V=\pi \cdot 25^2 \cdot 31$
$V=\pi \cdot 625 \cdot 31$
$V=19375\pi$
$V\approx 19375 \times 3.14$

Volume = 60837.5 in^3

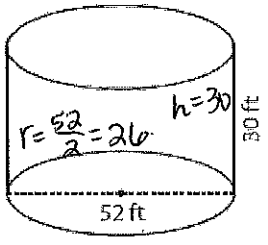
3)



$V=\pi r^2 h$
$V=\pi \cdot 15^2 \cdot 28$
$V=\pi \cdot 225 \cdot 28$
$V=6300\pi$
$V\approx 6300 \times 3.14$

Volume = 19782 m^3

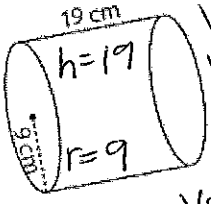
4)



$V=\pi r^2 h$
$V=\pi \cdot 26^2 \cdot 30$
$V=\pi \cdot 676 \cdot 30$
$V=20280\pi$
$V\approx 20280 \times 3.14$

Volume = 63679.2 ft^3

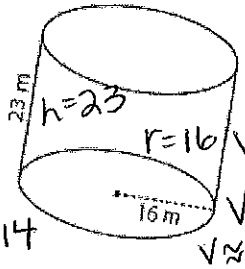
5)



$V=\pi r^2 h$
$V=\pi \cdot 9^2 \cdot 19$
$V=\pi \cdot 81 \cdot 19$
$V=1539\pi$
$V\approx 1539 \times 3.14$

Volume = 4832.46 cm^3

6)



$V=\pi r^2 h$
$V=\pi \cdot 16^2 \cdot 23$
$V=\pi \cdot 256 \cdot 23$
$V=5888\pi$
$V\approx 5888 \times 3.14$

Volume = 18488.32 m^3