

Sequoia

This problem gives you the chance to:

- use circumference of a circle
- use volume of a cone and cylinder

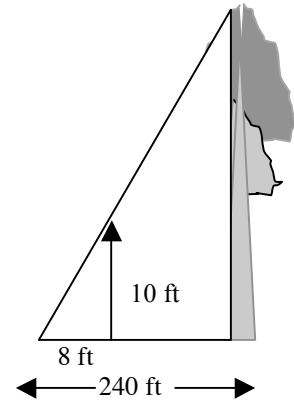
Some students are at Summer Camp.

Sequoia trees grow near the camp and a team challenge is set to calculate the approximate volume of one of the trees.

1. The students estimate the height of a tree using a stick 10 feet high.

One member of the team lies on the ground 240 feet away from the foot of the tree.

He lines up the top of the tree with the top of the stick when he is 8 feet away from the stick, as shown in the diagram.



Estimate the height of the tree.
Show your work.

_____ feet

2. The team measures the distance, 56 feet, around the tree, near the base.

$$\text{Circumference of a circle} = 2\pi r$$

Calculate the radius of the tree near the base.
Show your work.

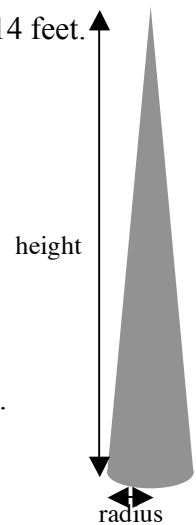
_____ feet

3. The students estimate the height of a smaller tree is 240 feet with a diameter of 14 feet.
The 'Eagles' team decides that the tree is approximately cone shaped.

$$\text{Volume of a cone} = \frac{1}{3}\pi r^2 h$$

Use the estimates of the height and diameter to calculate the volume of the tree.
Show your work.

_____ cubic feet



4. The 'Owls' team uses the formula for the volume of a cylinder to calculate the volume of the tree.
Calculate the volume of the tree using their method.

$$\text{Volume of a cylinder} = \pi r^2 h$$