

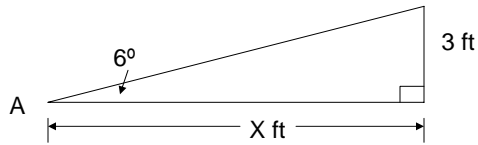


Summer Help Wanted

Geometry
students need
only apply!

5-min Check

- The shop class is planning to add a wheelchair ramp to the emergency exit at their end of the building. They know that the landing is 3 feet high and the angle the ramp makes with the ground cannot be greater than 6° . What is the minimum distance from the landing that the ramp should start?



$$m\angle A = 6^\circ$$

$$\text{adjacent leg} = x \text{ ft}$$

$$\text{opposite leg} = 3 \text{ ft}$$

$$\tan A = \frac{\text{opp leg}}{\text{adj leg}}$$

$$\tan 6^\circ = \frac{3}{x}$$

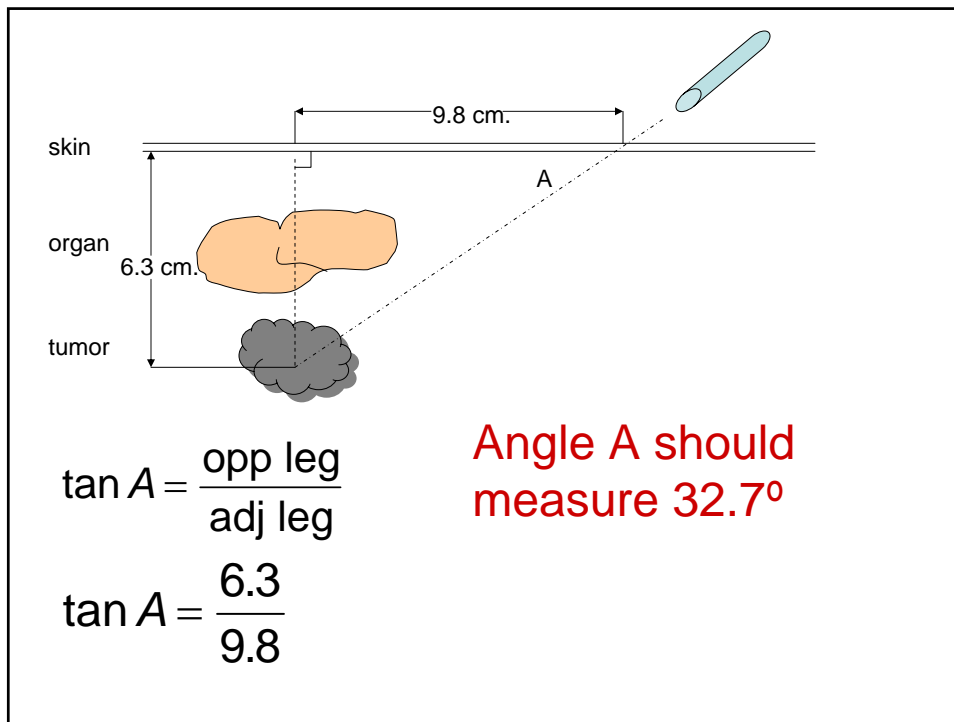
$$x(\tan 6^\circ) = 3$$

$$x = \frac{3}{\tan 6^\circ}$$

The ramp should
begin about 28.5 feet
from the landing

Malpractice??

- A patient is being treated with radiotherapy for a tumor that is behind a vital organ. In order to prevent damage to the organ, the radiologist must angle the rays to the tumor. If the tumor is 6.3 cm. below the skin and the rays enter the body 9.8 cm to the right of the tumor, find the angle the rays should enter the body to hit the tumor.



New Vocabulary

- **Angle of Elevation:** an angle formed by a horizontal line and the line of sight to an object above the level of the horizontal

Angle of Depression: an angle formed by a horizontal line and the line of sight to an object below the level of the horizontal

Clinometer: an instrument used to measure the angle of elevation or depression

Summer Job multi-talented geometry students wanted

The flag pole in front of the school is in need of a coat of paint. The paint specified for the job costs \$72.50/quart and a quart covers 10 ft². Be the lowest bidder and the job is yours! (the school will have a hydraulic lift available on Aug 12th for use on the project) All bids must be submitted no later than July 25th.



Assumptions

- The flagpole is perpendicular to the ground
- The flagpole is cylindrical
- It will not take longer than one work day for you and your partner to paint flagpole
- You are not afraid of heights

While you're at it...

- Please determine the height of the following:



Course of Action

- Assemble clinometer with partner
- Use clinometer to determine angle of elevation for flagpole, front of building and tree by office
- Record data (angle of elevation, distance from object, distance from ground to person's eye level)
- With partner calculate height of objects
- Submit bid. Be sure to include cost of paint (paint can only be purchased by the quart), brushes (6.50 per brush), labor costs (going rate is 2.50/ft²) and any other incidentals you think you will need for the project. There is grant money available for creative incidentals. Include height of surrounding objects for verification of your geometry skills.