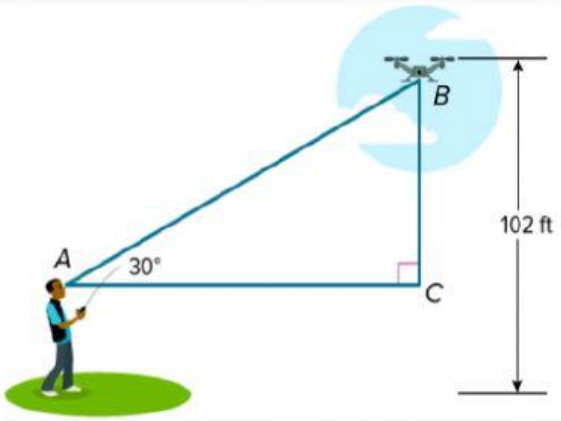
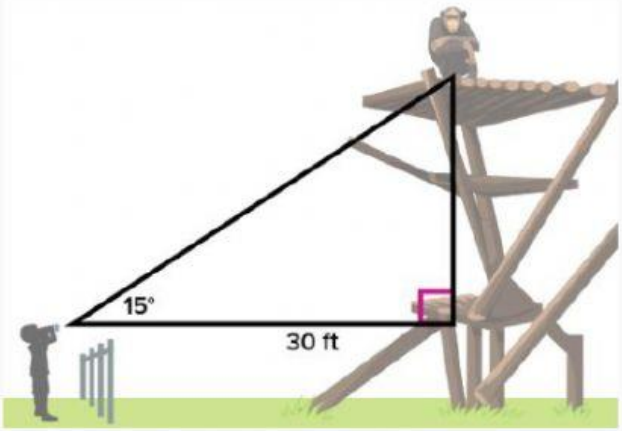
Applying Trigonometry

DRONES Rakeem is flying his drone at the park. He spots the drone at an angle of elevation that he estimates to be 30°. The remote control tells Rakeem that his drone is 102 feet above the ground. If Rakeem is 6 feet tall, how far is he from the drone to the nearest foot?



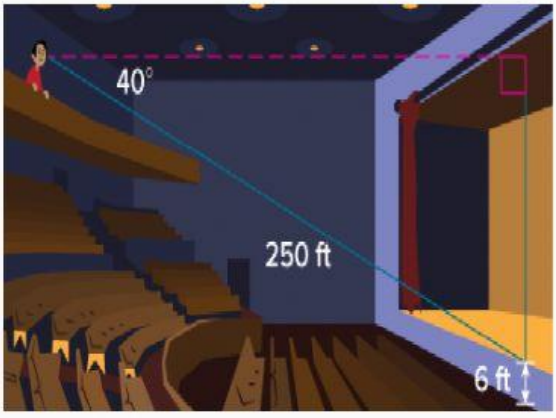
ZOO A sign at the chimpanzee enclosure tells Rajesh that the highest platform is 30 feet away from the observation area. He tilts his binoculars to an estimated angle of 15° to see a chimpanzee on the platform. If he is 5 feet tall, how tall is the highest platform? Round to the nearest foot.

- A 8 ft
- B 13 ft
- C 29 ft
- D 34 ft



CONCERTS Rodrigo is seated in the top row of the concert venue 250 feet away from his favorite drummer. If the angle of depression to the drummer is about 40° and the band is performing on a 6-foot platform, at what height is Rodrigo sitting?

Rodrigo's seat is approximately _____ feet from the floor of the venue.



عزيزي الطالب : أولاً اجتهد في فهم ومذاكرة تمارين الكتاب(الكتاب أولاً) . تمنياتي للجميع بالنجاح والتفوق

Use Two Angles of Elevation or Depression

AIRPORTS St. Maarten's Maho Beach is famous for attracting tourists to view the landing of low-flying aircraft. Leah is standing 15 feet directly in front of Mica as they view an approaching plane. Leah is standing about 6.5 feet in front of the plane and the angle of elevation from Mica to the plane is 60°. If Leah and Mica are both 5.5 feet tall, what is the angle of elevation from Leah to the plane to the nearest degree? How high is the plane to the nearest foot?

Angle of elevation: ____°

Height of plane: ____ ft

This question has two parts. First, answer Part A. Then, answer Part B.

Part A

SEARCH AND RESCUE A flare is shot vertically into the air approximately 200 meters from base camp. The angle of elevation to the maximum height of the flare is 35°. The group at base camp needs to know the altitude of the flare.

Select the equation that represents the situation if a represents the height of the flare.

- A) $\cos 35° = \frac{200}{a}$
- B) $\tan 35° = \frac{200}{a}$
- C) $\tan 35° = \frac{a}{200}$

Part B

What is the maximum height of the flare to the nearest meter?

- A) 140 m
- B) 244 m
- C) 286 m

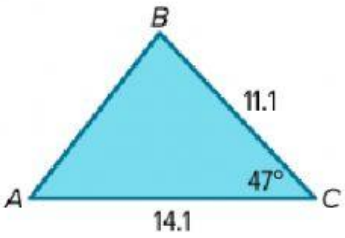
LIFEGUARDING Braylen stands on an 8-foot platform and sights a swimmer at an angle of depression of 5°. If Braylen is 6 feet tall, how far away is the swimmer from the base of the platform to the nearest foot?

ft

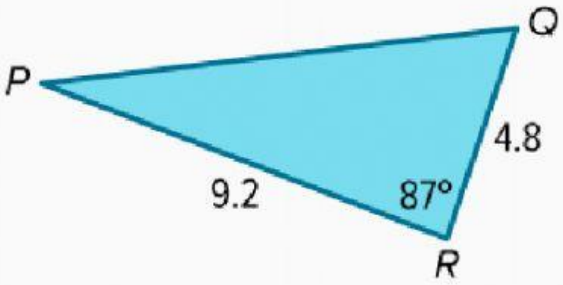
SIGHTSEEING Looking north, two skyscrapers are sighted from the viewing deck of the Empire State Building at 1250 feet up. One skyscraper is sighted at a 20° angle of depression and a second skyscraper is sighted at a 30° angle of depression. How far apart are the two skyscrapers to the nearest foot?

ft

Use trigonometry to find the area of $\triangle ABC$ to the nearest tenth.



Use trigonometry to find the area of $\triangle PQR$ to the nearest tenth.



- A 22.0 units^2
- B 28.3 units^2
- C 54.2 units^2
- D 1035.7 units^2

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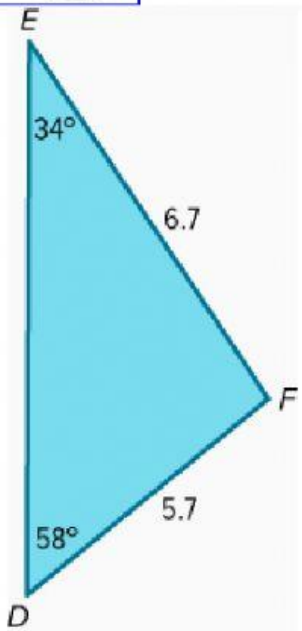
Use trigonometry to find the area of to the nearest tenth.

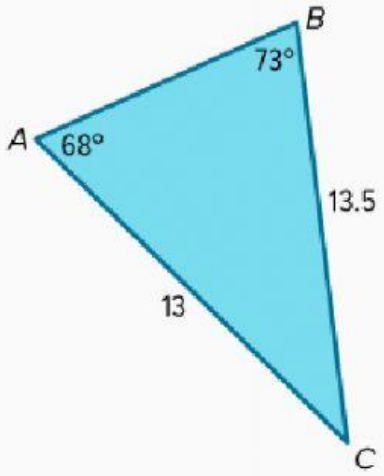


Because you do not know the measure of the included angle F, add the measures of angles D and E and subtract the total from [ ].

$$m\angle F = [\ ]^\circ$$

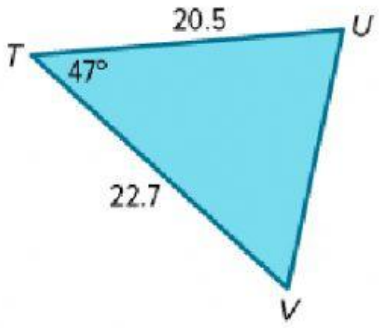
$\text{Area} = \frac{1}{2}de\sin F$	Area of a triangle
$\text{Area} = \frac{1}{2}(6.7)([\ ])\sin 88^\circ$	Substitution
$\text{Area} \approx 19.08$	Simplify.

Use trigonometry to find the area of $\triangle ABC$ to the nearest tenth.



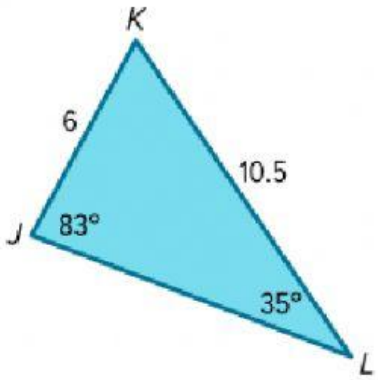
The area of $\triangle ABC$ is about [ ] units^2.

Use trigonometry to find the area of ΔTUV to the nearest tenth.



$\square$ units^2

Use trigonometry to find the area of ΔJKL to the nearest tenth.



$\square$ units^2