Unit 2 Think Pair Share

1

Home

To find the height of a tower, a surveyor positions a transit that is 2 meters tall at a spot 40 meters from the base of the tower. She measures the angle of elevation to the top of the tower to be 46 degrees. What is the height of the tower, to the nearest meter?

2

Home

To measure the height of a rock formation, a surveyor places her transit 100 m from its base and focuses the transit on the top of the formation. The angle of elevation is 67 degrees. The transit is 1.5 m above the ground. What is the height of the rock formation? (Round to the nearest meter.)

3

Home

An observer in a hot air balloon sights a building that is 50 m from the balloon's launch point. The balloon has risen 165 m. What is the angle of depression from the balloon to the building?

4

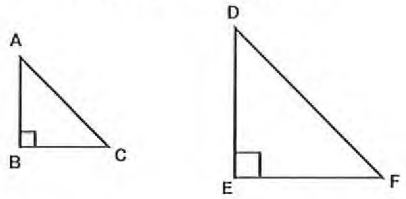
Home

A surveyor finds that the angle of elevation to the top of a 1000 ft tower is 67 degrees. How far is the surveyor from the base of the tower?

Unit 2 Think Pair Share

5 △ABC ~ △DEF

Home



What 3 trig ratios is the cosD congruent to?

6

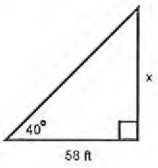
Home

An airplane is flying at an elevation of 1500 feet. What is the airplane's angle of elevation from the runway when it is 5000 feet from the runway?

7

Home

A photographer shines a camera light at a particular painting forming an angle of 40 degrees with the camera platform. If the light is 58 feet from the wall where the painting hangs, how high above the platform is the painting?

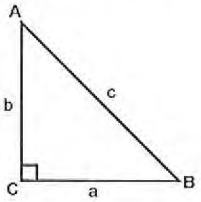


8

Home

Solve △ABC using the diagram and the given measurements.

<B = 49 degrees,
a = 4

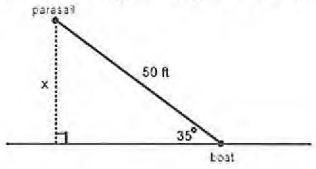


Unit 2 Think Pair Share

9

Home

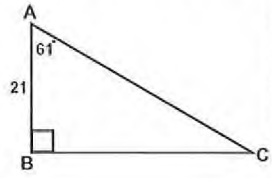
A parasailing company uses a 50-foot cable to connect the parasail to the back of the boat. About how far is the parasail from the water when the cable has a 35 degree angle of elevation?



10

Home

Solve the right triangle. Complete the table below as you solve the right triangle.

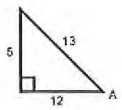


Part	Measure/Length
$\angle A$	61°
$\angle B$	
$\angle C$	
$\overline{AB}$	21
$\overline{BC}$	
$\overline{AC}$	

11

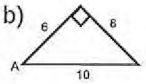
Home

a)



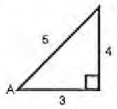
sinA=____

b)



tanA=____

c)

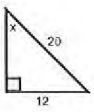


cosA=____

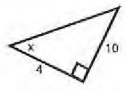
12

Home

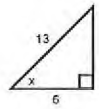
a)



b)



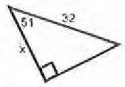
c)



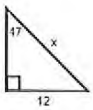
13

Home

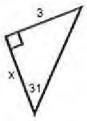
a)



b)



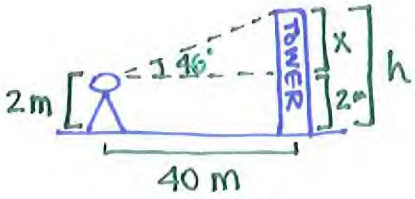
c)



Unit 2 Think Pair Share

1 Home

To find the height of a tower, a surveyor positions a transit that is 2 meters tall at a spot 40 meters from the base of the tower. She measures the angle of elevation to the top of the tower to be 46 degrees. What is the height of the tower, to the nearest meter?



$\tan 46^\circ = \frac{x}{40}$

$40 \cdot \tan 46^\circ = x$

$41 = x$

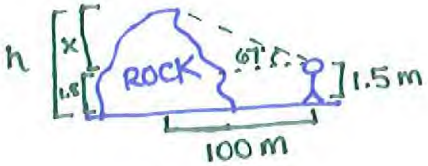
$h = x + 2$

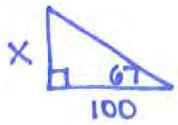
$= 41 + 2$

$= 43 \text{ m}$

2 Home

To measure the height of a rock formation, a surveyor places her transit 100 m from its base and focuses the transit on the top of the formation. The angle of elevation is 67 degrees. The transit is 1.5 m above the ground. What is the height of the rock formation? (Round to the nearest meter.)





$\tan 67^\circ = \frac{x}{100}$

$100 \cdot \tan 67^\circ = x$

$236 \text{ m} = x$

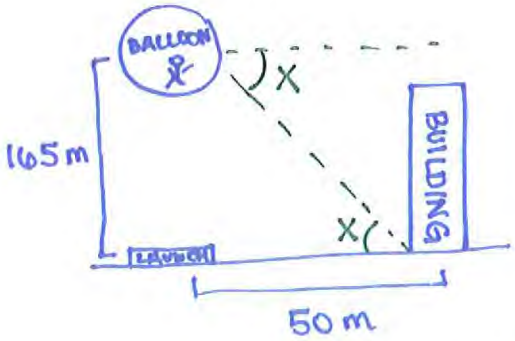
$h = x + 1.5$

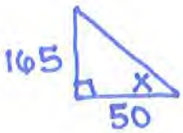
$= 236 + 1.5$

$237.5 \text{ m} \rightarrow \boxed{238 \text{ m}}$

3 Home

An observer in a hot air balloon sights a building that is 50 m from the balloon's launch point. The balloon has risen 165 m. What is the angle of depression from the balloon to the building?





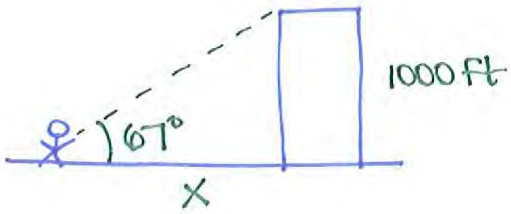
$\tan x = \frac{165}{50}$

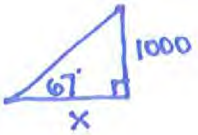
$x = \tan^{-1}\left(\frac{165}{50}\right)$

$\boxed{x = 73.1^\circ}$

4 Home

A surveyor finds that the angle of elevation to the top of a 1000 ft tower is 67 degrees. How far is the surveyor from the base of the tower?





$\tan 67^\circ = \frac{1000}{x}$

$x \cdot \tan 67^\circ = 1000$

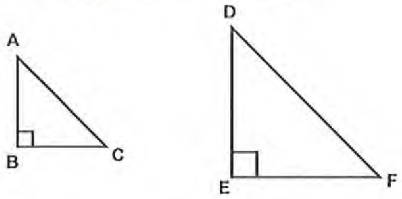
$x = \frac{1000}{\tan 67^\circ}$

$\boxed{x = 424.5 \text{ ft}}$

Unit 2 Think Pair Share

5 △ABC ~ △DEF

Home



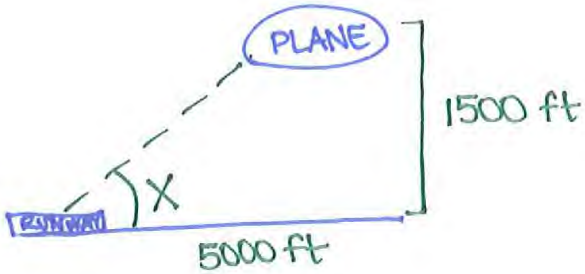
What 3 trig ratios is the cosD congruent to?

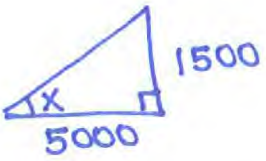
cosA
sinC
sinF

6

Home

An airplane is flying at an elevation of 1500 feet. What is the airplane's angle of elevation from the runway when it is 5000 feet from the runway?





$\tan X = \frac{1500}{5000}$

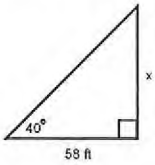
$X = \tan^{-1}\left(\frac{1500}{5000}\right)$

$X = 16.7°$

7

Home

A photographer shines a camera light at a particular painting forming an angle of 40 degrees with the camera platform. If the light is 58 feet from the wall where the painting hangs, how high above the platform is the painting?



$\tan 40° = \frac{x}{58}$

$58 \cdot \tan 40° = x$

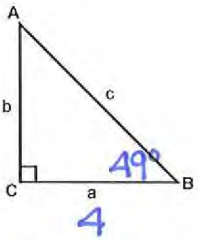
$48.7 = x$

8

Home

Solve △ABC using the diagram and the given measurements.

<B = 49 degrees,
a = 4



$\angle A = 41°$

$\tan 49° = \frac{b}{4}$

$4 \cdot \tan 49° = b$

$4.6 = b$

$\cos 49° = \frac{4}{c}$

$c \cdot \cos 49° = 4$

$c = \frac{4}{\cos 49°}$

$c = 6.1$

Unit 2 Think Pair Share

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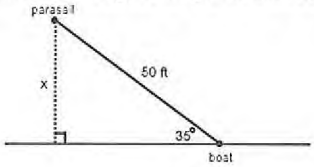
A parasailing company uses a 50-foot cable to connect the parasail to the back of the boat. About how far is the parasail from the water when the cable has a 35 degree angle of elevation?



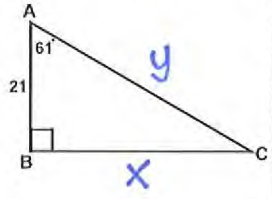
$\sin 35° = \frac{x}{50}$

$50 \cdot \sin 35° = x$

$28.7 = x$

10 Home

Solve the right triangle. Complete the table below as you solve the right triangle.



Part	Measure/Length
$\angle A$	61 °
$\angle B$	90°
$\angle C$	29°
$\overline{AB}$	21
$\overline{BC}$	37.9
$\overline{AC}$	43.3

$\angle A + \angle B + \angle C = 180°$

$61° + 90° + \angle C = 180°$

$\angle C = 29°$

$\tan 61° = \frac{x}{21}$

$21 \cdot \tan 61° = x$

$37.9 = x$

$\cos 61° = \frac{21}{y}$

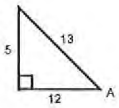
$y \cdot \cos 61° = 21$

$y = \frac{21}{\cos 61°}$

$y = 43.3$

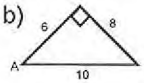
11 Home

a)



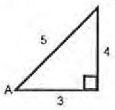
$\sin A = \frac{5}{13}$

b)



$\tan A = \frac{8}{6}$

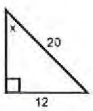
c)



$\cos A = \frac{3}{5}$

12 Home

a)

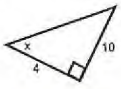


$\sin X = \frac{12}{20}$

$X = \sin^{-1}\left(\frac{12}{20}\right)$

$X = 36.9°$

b)

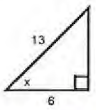


$\tan X = \frac{10}{4}$

$X = \tan^{-1}\left(\frac{10}{4}\right)$

$X = 68.2°$

c)



$\cos X = \frac{6}{13}$

$X = \cos^{-1}\left(\frac{6}{13}\right)$

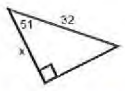
$X = 62.5°$

Unit 2 Think Pair Share

13

Home

a)

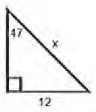


$\cos 51° = \frac{x}{32}$

$32 \cdot \cos 51° = x$

$20.1 = x$

b)



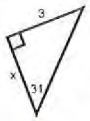
$\sin 47° = \frac{12}{x}$

$x \cdot \sin 47° = 12$

$x = \frac{12}{\sin 47°}$

$x = 16.4$

c)



$\tan 31° = \frac{3}{x}$

$x \cdot \tan 31° = 3$

$x = \frac{3}{\tan 31°}$

$x = 5.0$