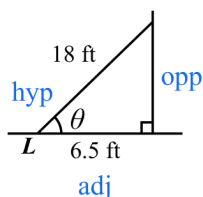


Show your work in the space provided and write your answer in the answer column. Figures are not drawn to scale.
Muestra tu trabajo en el espacio dado and escribe tu respuesta en la columna de respuestas. The figures no están dibujadas a scale.

Part G.SRT.C.6 Inverse Trig

1. An 18 ft ladder leans against the gym wall with its foot 6.5 ft from the wall, at L. Which expression gives θ , the angle the ladder makes with the ground?

Una escalera de 18 pies está apoyada contra la pared del gimnasio con su base a 6.5 pies de la pared, en L. ¿Qué expresión da θ , the angle que forma la escalera con el suelo?



★ The ladder is the hypotenuse. 6.5 is adjacent to $\theta \rightarrow$ CAH, cosine.

★ La escalera is the hypotenuse. 6.5 is adjacent a $\theta \rightarrow$ CAH, cosine.

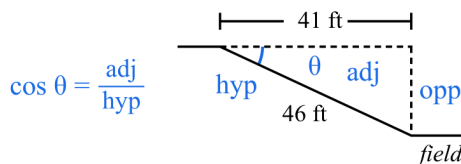
So h ✓ (C a h) ✓ To a ✓

$$\cos \theta = \frac{6.5}{18}$$

$$\theta = \cos^{-1}\left(\frac{6.5}{18}\right) \approx 68.8^\circ$$

2. On the campus map, the horizontal distance from the top of the hill to the soccer field is 41 ft. The actual distance down the slope is 46 ft. Find the angle of depression from the horizontal, to the nearest tenth of a degree.

En el mapa de la escuela, the horizontal distance desde lo alto de la colina hasta el campo de fútbol is 41 pies. La distancia real bajando la pendiente is 46 pies. Find the angle of depression desde the horizontal, a la décima de grado más cercana.



$$\cos \theta = \frac{\text{adj}}{\text{hyp}}$$

So h ✓ (C a h) ✓ To a ✓

The angle of depression is at the top, between the horizontal and the slope. 41 is adjacent, 46 is the hypotenuse $\rightarrow$ CAH, cosine.

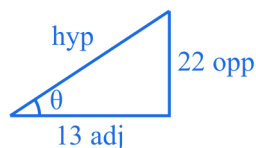
The angle of depression está arriba, entre the horizontal and la pendiente. 41 is adjacent, 46 is the hypotenuse $\rightarrow$ CAH, cosine.

$$\cos \theta = \frac{41}{46}$$

$$\theta = \cos^{-1}\left(\frac{41}{46}\right) \approx 27.0^\circ$$

3. In the afternoon, the 22 ft light pole in the school parking lot casts a 13 ft shadow. What is the approximate angle of elevation from the end of the shadow to the top of the pole?

En la tarde, el poste de luz de 22 pies del estacionamiento de la escuela proyecta una sombra de 13 pies. ¿Cuál is the approximate angle of elevation desde el final de la sombra hasta lo alto del poste?



★ The pole is opposite the angle and the shadow is adjacent $\rightarrow$ TOA, tangent.

★ El poste is opposite al angle and la sombra is adjacent $\rightarrow$ TOA, tangent.

$$\tan \theta = \frac{22}{13}$$

$$\theta = \tan^{-1}\left(\frac{22}{13}\right) \approx 59.4^\circ$$

So h ✓ C a h ✓ (T o a) ✓

ANSWERS:

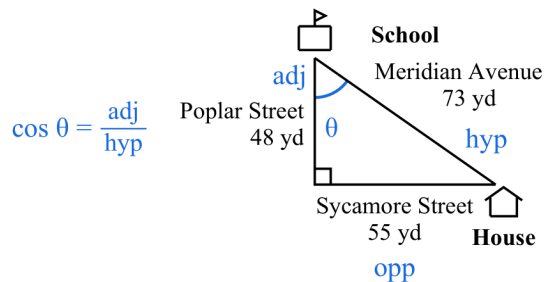
1. (A) $\cos^{-1}\left(\frac{6.5}{18}\right)$
(B) $\cos^{-1}\left(\frac{18}{6.5}\right)$
(C) $\sin^{-1}\left(\frac{6.5}{18}\right)$
(D) $\tan^{-1}\left(\frac{6.5}{18}\right)$

2. angle $\approx 27.0^\circ$

3. (A) 30.6°
(B) 36.2°
(C) 53.8°
(D) 59.4°

IM2 Cycle T Practice Quiz 2

4. The map shows two ways Leo can walk from home to school. What is the approximate measure of the angle formed by Poplar Street and Meridian Avenue? *El mapa muestra dos caminos que Leo puede tomar de su casa a la escuela. ¿Cuál es la medida aproximada del ángulo formado por Poplar Street and Meridian Avenue?*



★ The angle is at the school: Poplar Street (48) is adjacent, Meridian Avenue (73) is the hypotenuse → CAH, cosine.

★ The angle está en la escuela: Poplar Street (48) is adjacent, Meridian Avenue (73) is the hypotenuse → CAH, cosine.

Soh Cah Toa

$$\cos \theta = \frac{48}{73}$$

$$\theta = \cos^{-1}\left(\frac{48}{73}\right) \approx 48.9^\circ \rightarrow 49^\circ$$

4. (A) 49°
(B) 46°
(C) 41°
(D) 22°

5. The Bruin mascot is 6'10" tall. At 3:05 p.m. and again at 4:05 p.m., they measured the length of their shadow, in feet, on the school blacktop. Which statement best describes the change in the elevation of the sun? It decreased by: *The Bruin mascot mide 6'10" de estatura. A las 3:05 p.m. and otra vez a las 4:05 p.m., midió la longitud de su sombra, en pies, en el patio de la escuela. ¿Qué statement describe mejor el cambio en the elevation del sol? Disminuyó:*

The Bruin mascot's Results

Time	Length of Shadow (feet)
3:05 p.m.	14
4:05 p.m.	30

Soh Cah Toa

★ Change 6'10" to feet first. Height is opposite, shadow is adjacent → tangent at each time, then subtract.

★ Cambia 6'10" a pies primero. La estatura is opposite, la sombra is adjacent → tangent a cada hora, luego resta.

$$6'10" = 6 + \frac{10}{12} \approx 6.83 \text{ ft}$$

$$\tan \theta_1 = \frac{6.83}{14} \rightarrow \theta_1 = \tan^{-1}\left(\frac{6.83}{14}\right) \approx 26.01^\circ$$

$$\tan \theta_2 = \frac{6.83}{30} \rightarrow \theta_2 = \tan^{-1}\left(\frac{6.83}{30}\right) \approx 12.83^\circ$$

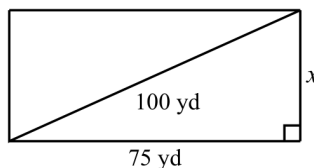
$$26.01^\circ - 12.83^\circ = 13.18^\circ \approx 13.2^\circ$$

5. (A) 26.0°
(B) 16.0°
(C) 12.0°
(D) 13.2°

Part G.SRT.C.8 $a^2 + b^2 = c^2$

6. The school soccer field is a rectangle. Its sideline is 75 yd and its diagonal is 100 yd. The width of the field is x.

La cancha de fútbol de la escuela is un rectangle. Su línea lateral mide 75 yardas and su diagonal mide 100 yardas. El ancho de la cancha is x.



- a) Which equation could be used to find x?

¿Qué equation se podría usar para find x?

A. $x^2 + 100^2 = 75^2$

B. $x + 75 = 100$

C. $100^2 - 75^2 = x^2$

D. $x^2 - 75^2 = 100^2$

★ The diagonal, 100, is the hypotenuse. The legs are 75 and x: $\text{leg}^2 + \text{leg}^2 = \text{hyp}^2$.

★ The diagonal, 100, is the hypotenuse. The legs son 75 and x: $\text{leg}^2 + \text{leg}^2 = \text{hyp}^2$.

$$x^2 + 75^2 = 100^2$$

$$x^2 = 100^2 - 75^2$$

$$x^2 = 4375$$

$$x = \sqrt{4375} \approx 66.1 \text{ yd}$$

- 6a. A B (C) D

- b) Solve for x.

6b. $x \approx 66.1 \text{ yd}$