

Actividades

1 ¿Cuánto mide cada uno de los arcos abarcados por los ángulos centrales indicados?:

a) Un ángulo de $\frac{\pi}{3}$ rad en una circunferencia de 4,6 cm de radio.

b) Un ángulo de 0,5 rad en una circunferencia de 3,5 cm de radio.

c) Un ángulo de 78° en una circunferencia de 61 cm de radio.

d) Un ángulo de 10° en una circunferencia de 25 cm de radio.

2 Expresa en radianes (en función de π cuando sea posible) o en grados las siguientes medidas:

a) 20°

b) $12,5^\circ$

c) $\frac{2\pi}{3}$ rad

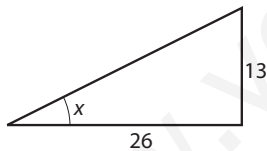
d) $\frac{\pi}{5}$ rad

e) $22,5^\circ$

f) $0,6$ rad

3 Halla el ángulo indicado de las siguientes figuras sin usar la calculadora:

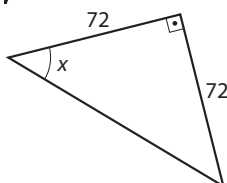
a)



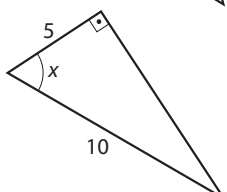
b)



c)

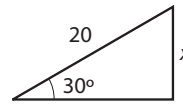


d)

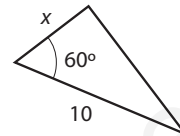


4 Halla los lados en cm de los siguientes triángulos sin usar la calculadora ni el teorema de Pitágoras.

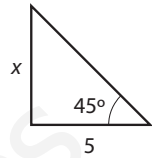
a)



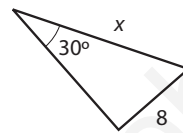
c)



e)



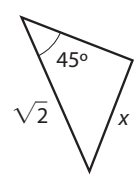
b)



d)

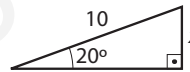


f)

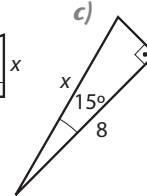


5 Halla los lados indicados con una incógnita de los siguientes triángulos usando la calculadora.

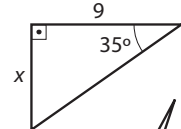
a)



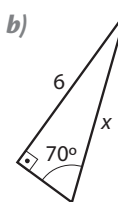
c)



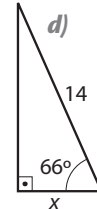
e)



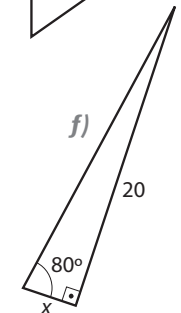
b)



d)

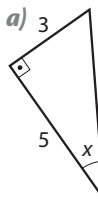


f)

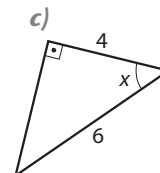


6 Halla el ángulo indicado de los siguientes triángulos rectángulos:

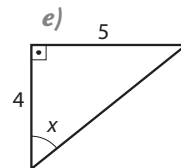
a)



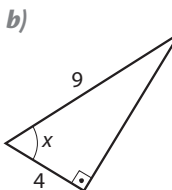
c)



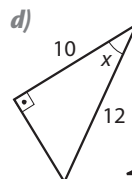
e)



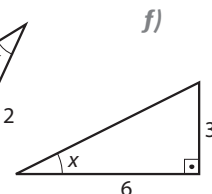
b)



d)



f)



Solución de las actividades

$$1 \quad a) \frac{\pi}{3} \cdot 4,6 \text{ cm} = 4,82 \text{ cm}$$

$$b) 0,5 \cdot 3,5 \text{ cm} = 1,75 \text{ cm}$$

$$c) 78^\circ \cdot \frac{\pi}{180^\circ} \cdot 61 \text{ cm} = 83,0 \text{ cm}$$

$$d) 10^\circ \cdot \frac{\pi}{180^\circ} \cdot 25 \text{ cm} = 4,36 \text{ cm}$$

$$2 \quad a) 20 \cdot \frac{\pi}{180^\circ} = \frac{\pi}{9} \text{ rad}$$

$$b) 12,5 \cdot \frac{\pi}{180} = \frac{5\pi}{72} \text{ rad}$$

$$c) \frac{2\pi}{3} \cdot \frac{180^\circ}{\pi} = 120^\circ$$

$$d) \frac{\pi}{5} \cdot \frac{180^\circ}{\pi} = 36^\circ$$

$$e) 22,5^\circ \cdot \frac{\pi}{180^\circ} = \frac{\pi}{8} \text{ rad}$$

$$f) 0,6 \cdot \frac{180^\circ}{\pi} = 34^\circ 22'$$

$$3 \quad a) \sin x = \frac{13}{26} = \frac{1}{2} \Rightarrow x = 30^\circ$$

$$b) \cos x = \frac{57}{114} = \frac{1}{2} \Rightarrow x = 60^\circ$$

$$c) \operatorname{tg} x = \frac{72}{72} = 1 \Rightarrow x = 45^\circ$$

$$d) \cos x = \frac{5}{10} = \frac{1}{2} \Rightarrow x = 60^\circ$$

$$4 \quad a) \sin 30^\circ = \frac{x}{20} \Rightarrow x = 20 \cdot \sin 30^\circ = 10 \text{ cm}$$

$$b) \sin 30^\circ = \frac{8}{x} \Rightarrow x = 8 \cdot \operatorname{cosec} 30^\circ = 16 \text{ cm}$$

$$c) \cos 60^\circ = \frac{x}{10} \Rightarrow x = 10 \cdot \cos 60^\circ = 5 \text{ cm}$$

$$d) \sin 60^\circ = \frac{5}{x} \Rightarrow x = \frac{5}{\sin 60^\circ} = \frac{10}{\sqrt{3}} \text{ cm}$$

$$e) \operatorname{tg} 45^\circ = \frac{x}{5} \Rightarrow x = 5 \cdot \operatorname{tg} 45^\circ = 5 \text{ cm}$$

$$f) \sin 45^\circ = \frac{x}{\sqrt{2}} \Rightarrow x = \sqrt{2} \cdot \sin 45^\circ = 1 \text{ cm}$$

$$5 \quad a) \sin 20^\circ = \frac{x}{10} \Rightarrow x = 10 \cdot \sin 20^\circ = 3,42 \text{ cm}$$

$$b) \sin 70^\circ = \frac{6}{x} \Rightarrow x = \frac{6}{\sin 70^\circ} = 6,39 \text{ cm}$$

$$c) \cos 15^\circ = \frac{x}{8} \Rightarrow x = 8 \cdot \cos 15^\circ = 7,73 \text{ cm}$$

$$d) \cos 66^\circ = \frac{x}{14} \Rightarrow x = 14 \cdot \cos 66^\circ = 5,7 \text{ cm}$$

$$e) \operatorname{tg} 35^\circ = \frac{x}{9} \Rightarrow x = 9 \cdot \operatorname{tg} 35^\circ = 6,30 \text{ cm}$$

$$f) \operatorname{tg} 80^\circ = \frac{20}{x} \Rightarrow x = \frac{20}{\operatorname{tg} 80^\circ} = 3,53 \text{ cm}$$

$$6 \quad a) \sin x = \frac{3}{5} \Rightarrow x = \arcsin\left(\frac{3}{5}\right) = 36,9^\circ$$

$$b) \cos x = \frac{4}{9} \Rightarrow x = \arccos\left(\frac{4}{9}\right) = 63,6^\circ$$

$$c) \cos x = \frac{4}{6} \Rightarrow x = \arccos\left(\frac{2}{3}\right) = 48,2^\circ$$

$$d) \cos x = \frac{10}{12} \Rightarrow x = \arccos\left(\frac{5}{6}\right) = 33,6^\circ$$

$$e) \operatorname{tg} x = \frac{5}{4} \Rightarrow x = \operatorname{arctg}\left(\frac{5}{4}\right) = 51,3^\circ$$

$$f) \operatorname{tg} x = \frac{3}{6} \Rightarrow x = \operatorname{arctg}\left(\frac{1}{2}\right) = 26,6^\circ$$