Bellwork Alg 2B Monday, February 26, 2018

Find the EXACT value of each. Rationalize denominators and simplify fractions.

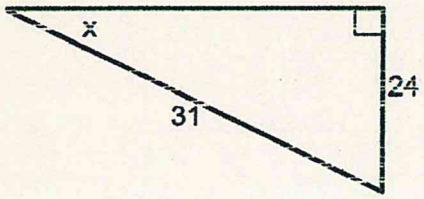
1. $\text{Cos}\frac{43\pi}{4}$ 2. $\text{Tan}(-2040°)$ 3. $\text{Sin}\left(\frac{-29\pi}{3}\right)$

Find all values of θ $(0° \leq \theta \leq 360°)$ that meet the following conditions.

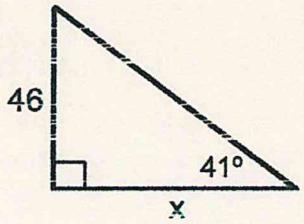
4. $\text{Sin}\theta = \frac{-1}{2}$ 5. $\text{Cos}\theta = \frac{\sqrt{3}}{2}$ 6. $\text{Tan}\theta = \frac{\sqrt{3}}{3}$

7. Find the value of x in each triangle to the nearest hundredth.

a)



b)



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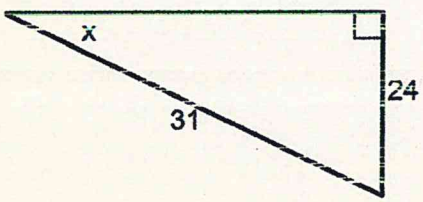
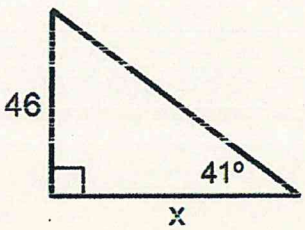


b)



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Answers

Find the EXACT value of each. Rationalize denominators and simplify fractions.

1. $\cos\frac{43\pi}{4}$

$\frac{43\pi}{4}$ Coterminal with $\frac{3\pi}{4}$

$\cos\frac{43\pi}{4} = \cos\frac{3\pi}{4} = -\frac{\sqrt{2}}{2}$

2. $\tan(-2040°)$

$-2040°$ coterminal with $120°$

$\tan(-2040°) = \tan 120° = \frac{\sqrt{3}/2}{-1/2} = -\sqrt{3}$

3. $\sin\left(\frac{-29\pi}{3}\right)$

$-\frac{29\pi}{3}$ coterminal with $\pi/3$

$\sin\left(-\frac{29\pi}{3}\right) = \sin\pi/3 = \frac{\sqrt{3}}{2}$

Find all values of θ $(0° \le \theta \le 360°)$ that meet the following conditions.

4. $\sin\theta = \frac{-1}{2}$

Sin is neg in Quad III & IV

$\theta = 210°, 330°$

5. $\cos\theta = \frac{\sqrt{3}}{2}$

Cos is pos in Quad I & IV

$\theta = 30°, 330°$

6. $\tan\theta = \frac{\sqrt{3}}{3}$

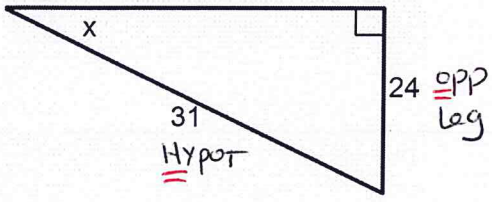
Tan is pos in Quad I & III

$\theta = 30°, 210°$

$\frac{\sqrt{3}}{3} \to \frac{1}{\sqrt{3}} \Rightarrow \frac{\frac{1}{2}}{\frac{\sqrt{3}}{2}}$ Y / X

7. Find the value of x in each triangle to the nearest hundredth.

a)



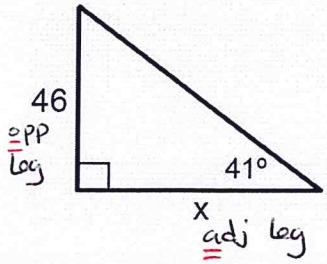
SOH CAH TOA

$\sin X = \frac{24}{31}$

$X = \sin^{-1}\left(\frac{24}{31}\right)$

$X = 50.73°$

b)



SOH CAH TOA

$\frac{\tan 41°}{1} = \frac{46}{x}$

$X = 52.92$