8:41
8:46
5
⇒ 20 min

Quiz 6C, Precalculus-04, (Calculators okay)

Dr. Graham-Squire, Fall 2013

Name: Key

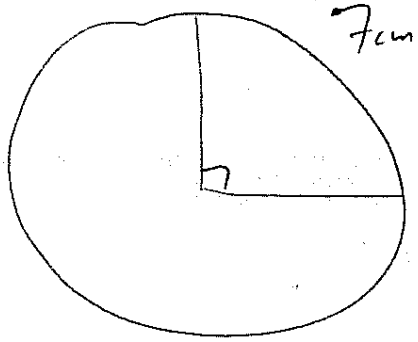
1. (3 points)

(a) Are the angles $\frac{-5\pi}{6}$ and 480° coterminal or not? Show your work!

$-\frac{5\pi}{6} \cdot \frac{180^{30}}{\pi} = -150° + 360° = 210° + 360 = 570°$

$570 \neq 480° \Rightarrow$ Not coterminal

(b) An arc of length 7 cm subtends a 90° angle in a circle. What is the radius of the circle? Leave your answer as a fraction in exact form (no decimals, since you do not have a calculator).



$S = \theta r$

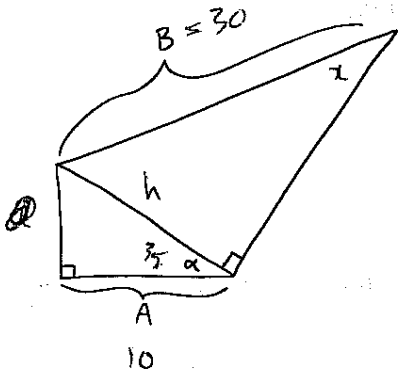
$\theta = 90° \cdot \frac{\pi}{180_2} = \frac{\pi}{2}$

$7cm = \left(\frac{\pi}{2}\right) r$

$\frac{2}{\pi}(7cm) = r$

$\frac{14}{\pi} cm = r$

2. (5 points) Find the value of x. Let $A = 10$, $B = 30$, and $\alpha = 35°$.



$\cos 35° = \frac{10}{h} \Rightarrow h(\cos 35) = 10$

$h = \frac{10}{\cos 35}$

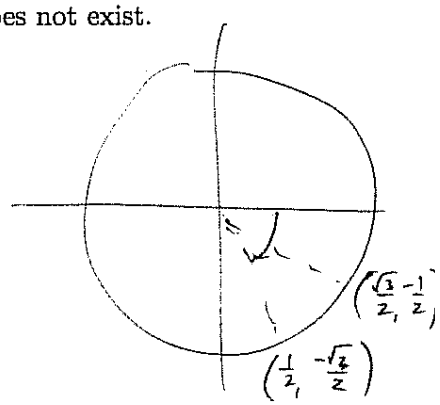
$h = 12.2$

$\sin x = \frac{h}{30}$

$x = \sin^{-1}\left(\frac{12.2}{30}\right) = \boxed{24}$

3. (2 points) Calculate the exact value of the following, and explain your reasoning or show your work. If an expression does not exist, write DNE and explain why it does not exist.

(a) $\tan^{-1}\left(-\sqrt{3}\right) = \tan^{-1}\left(\frac{-\frac{\sqrt{3}}{2}}{\frac{1}{2}}\right) = \boxed{-\frac{\pi}{3} \text{ or } -60°}$



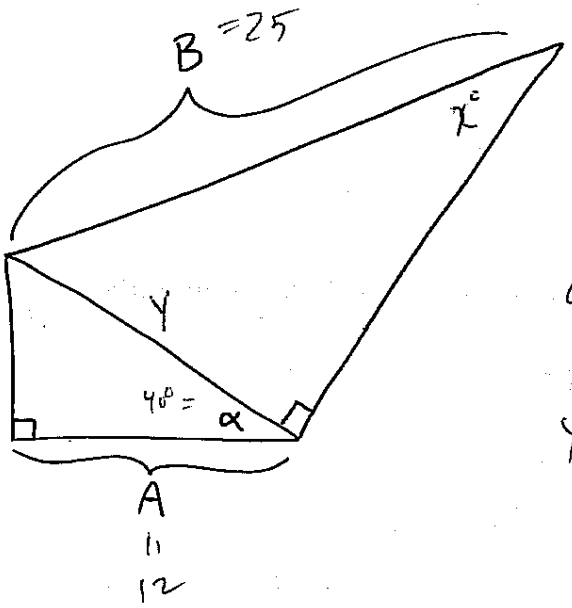
(b) $\cos^{-1}\frac{2\pi}{3}$ $\boxed{\text{DNE}}$ because $\frac{2\pi}{3} > 1$

Quiz 6D, Precalculus-04, (Calculators okay)

Dr. Graham-Squire, Fall 2013

Name: Key

1. (5 points) Find the value of x. Let $A = 12$, $B = 25$, and $\alpha = 40°$. Round to nearest 0.1.



$\cos 40^\circ = \frac{12}{Y}$

$Y = \frac{12}{\cos 40^\circ} =$

$\sin x^\circ = \frac{Y}{25} \Rightarrow$

$x^\circ = \sin^{-1}\left(\frac{Y}{25}\right) =$

2. (2 points) Calculate the exact value of the following, and explain your reasoning or show your work. If an expression does not exist, write DNE and explain why it does not exist.

(a) $\tan^{-1}\left(\frac{-1}{\sqrt{3}}\right) = \frac{-\pi}{6}$

$\sin\left(\frac{-\pi}{6}\right) = \frac{-1}{2}$

$\cos\left(\frac{-\pi}{6}\right) = \frac{\sqrt{3}}{2}$

$\Rightarrow \tan\left(\frac{-\pi}{6}\right) = \frac{-1}{\sqrt{3}}$

(b) $\cos^{-1}\frac{2\pi}{3} = DNE$ b/c $\frac{2\pi}{3} > 1$

3. (3 points)

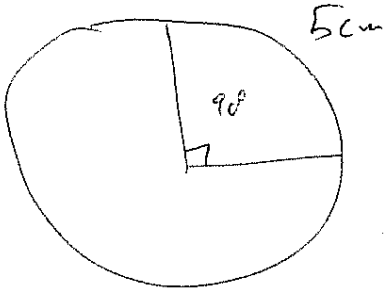
(a) Are the angles $\frac{-4\pi}{3}$ and 510° coterminal or not? Show your work!

$\frac{-4\pi}{3} \cdot \frac{180}{\pi} = -240 + 360° = 120°$

$510 - 360 = 150°$ Not same

$\Rightarrow$ Not Coterminal

(b) An arc of length 5 cm subtends a 90° angle in a circle. What is the radius of the circle? Leave your answer as a fraction in exact form (no decimals, since you do not have a calculator).



$90° \cdot \frac{\pi}{180_2} = \frac{\pi}{2}$ rad.

$S = \theta r$

$5cm = \frac{\pi}{2} \cdot r$

$\frac{2}{\pi}(5cm) = r$

$\frac{10}{\pi}\ cm = r$