

Quiz #1

Name: Solutions

Math 150, Prof. Beydler

Thursday, March 9, 2017

Directions: Show all work. No books or notes. A scientific calculator is allowed. Your desk and lap must be clear (no phones, notebooks, etc.). Write your answers in the indicated places, or box your answers. Good luck!

1. (2 points) Convert 42.128° to degrees, minutes, and seconds to the nearest second.

$$\frac{0.128^\circ}{1} \times \frac{60'}{1^\circ} = 7.68'$$

Answer: $42^\circ 7' 41''$

$$\frac{0.68'}{1} \times \frac{60''}{1'} = 40.8''$$

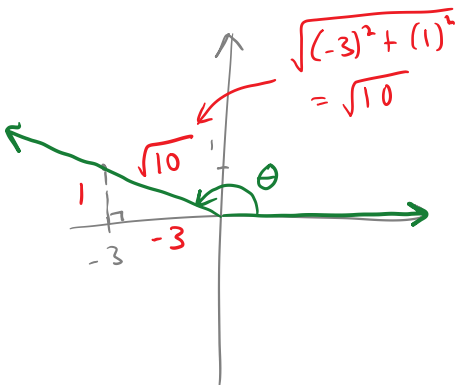
2. (1 point) Find the angle of least positive measure (not equal to the given measure) that is coterminal with the following angle.

854°

$$\frac{-720^\circ}{134^\circ}$$

Answer: 134°

3. (3 points) The terminal side of an angle θ in standard position passes through the point $(-3, 1)$. Find the values of the six trigonometric functions of angle θ .



$$\sin \theta = \frac{1}{\sqrt{10}}$$

$$\csc \theta = \frac{\sqrt{10}}{1}$$

$$\cos \theta = \frac{-3}{\sqrt{10}}$$

$$\sec \theta = \frac{\sqrt{10}}{-3}$$

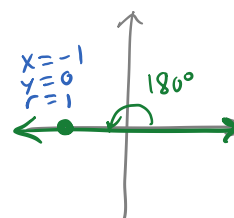
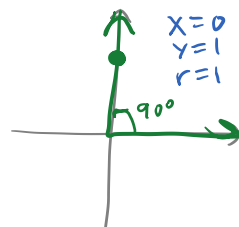
$$\tan \theta = \frac{1}{-3}$$

$$\cot \theta = -3$$

4. (2 points) Evaluate the following expression.

$$\sin^2 90^\circ + \cos^2 180^\circ$$

$$\begin{aligned} &= (\sin 90^\circ)^2 + (\cos 180^\circ)^2 \\ &= \left(\frac{1}{1}\right)^2 + \left(\frac{-1}{1}\right)^2 \\ &= 1 + 1 = 2 \end{aligned}$$



Answer: 2

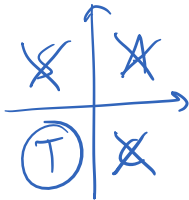
5. (1 point) Find $\csc \theta$ given that $\sin \theta = -\frac{2}{5}$.

Answer: $-\frac{5}{2}$

6. (1 point) Identify the quadrant of an angle θ that satisfies the given conditions.

$\cos \theta < 0, \cot \theta > 0$

QI QII **QIII** QIV (circle one)



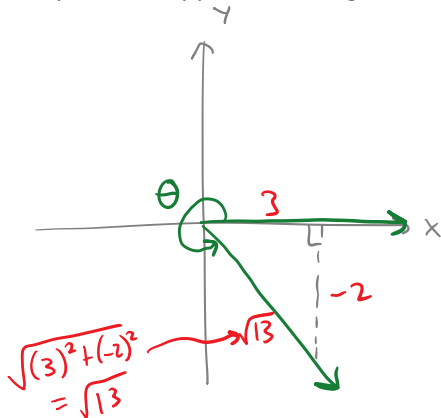
7. (1 point) Decide whether each statement is *possible* or *impossible*.

$\sin \theta = -0.5$ **possible** impossible (circle one)

$\sec \theta = \frac{1}{2}$ possible **impossible** (circle one)

8. (2 points) Suppose that angle θ is in quadrant IV and $\tan \theta = -\frac{2}{3}$. Find the value of $\sin \theta$.

Answer: $-\frac{2}{\sqrt{13}}$
(or $-\frac{2\sqrt{13}}{13}$)



9. (2 points) Find $\cot \theta$, given that $\sec \theta = -3$ and $\sin \theta < 0$.

QIII

Answer: $\frac{1}{2\sqrt{2}}$

(or $\frac{1}{\sqrt{8}}$, or $\frac{\sqrt{2}}{4}$, or $\frac{\sqrt{8}}{8}$)

