
September 4, 2019

Score _____

1. (3.5 points) The point $(-4, 10)$ is on the terminal side of an angle in standard position. Find the exact values of the six trigonometric functions at that angle. Simplify your answers as much as possible.

- (3.5 points) The angle θ lies in the 3rd quadrant and $\cos \theta = -0.8$. Find the exact values of the six trigonometric functions at the angle θ .
- (1 point) Prove that $\sin^2 \theta - \cos^2 \theta = 2 \sin^2 \theta - 1$ by using trig identities to transform one side of the equation into the other.

4. (3 points) Determine the exact value of each without using a calculator.

(a) $\tan\left(\frac{13\pi}{6}\right)$

(b) $\sin\left(\frac{-23\pi}{4}\right)$

(c) $\sec(-570^\circ)$

5. (2 points) The shortest side of a $30^\circ - 60^\circ - 90^\circ$ triangle has length 30 units. Find the lengths of the hypotenuse and the other side.

6. (2 points) At 15 feet from the base of a flagpole, the angle of elevation to the top is 75° . How tall is the flagpole?