Math 1613 - Trigonometry

Quiz #3 - 2011.08.25

Solutions

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1. Explain what a reference angle is, and given an example.

A reference angle is the positive acute angle made by the terminal side angle θ and the x-axis. For example, if we have an angle which terminates in the third quadrant which measures $215°$, the reference angle would be the positive angle between the terminal side of this angle and the negative x-axis, which in this case is $\theta = 35°$.

2. Find the values of $\sin(\theta)$, $\cos(\theta)$ and $\tan(\theta)$ for an angle in standard position having the point $(3, -4)$ on its terminal side.

First, we compute $r = \sqrt{(3)^2 + (-4)^2} = 5$. Next, we use the formulas $\sin(\theta) = \frac{y}{r} = -\frac{4}{5}$ and $\cos(\theta) = \frac{3}{5}$. Lastly, $\tan(\theta) = \frac{y}{x} = -\frac{4}{3}$.