

MAT 123: Introduction to Calculus, R-16
Fall 2005

Quiz 1

Sep. 22, 2005
duration: 15 min.

Question. Find the value of $\cot\left(\frac{5\pi}{3}\right)$.

N.B. You must **show all your work** to receive full credit. Right answers without sufficient explanation will automatically get a zero.

Solution.

(1) *What is the reference angle?* Well, reference angle is the small angle to the x -axis. In this case, $\frac{5\pi}{3} = 300^\circ$ has reference angle 60° .

(2) *What is $\cot 60^\circ$?* Since $\cos 60^\circ = \frac{1}{2}$ and $\sin 60^\circ = \frac{\sqrt{3}}{2}$, we have $\cot 60^\circ = \frac{1}{\sqrt{3}}$.

(3) *What is the sign of $\cot 300^\circ$?* Since 300° is in the 4th quadrant and \cot is negative there (why?), we have $\cot 300^\circ = -\cot 60^\circ = -\frac{1}{\sqrt{3}}$.