Quiz 1 on PreCalculus II (Math 1151)

Mark your Recitation Session Number: 015 023 025

Name:_____ Student ID:_____ Score:_____

You must show all your work. Correct answer without any step earns zero point.
You **cannot** use calculators in this quiz.

1. (2 points.) a) Convert the angle $\frac{2\pi}{3}$ in radians to degrees.

   Solution:
   $$\frac{2\pi}{3} = \frac{2\pi}{3}\frac{180^\circ}{\pi} = 120^\circ.$$

   (4 points.) b) Here A denotes the area of the sector of a circle of radius r formed by the central angle θ.

   $$\text{Given } \theta = \frac{1}{5} \text{ radian, } A = 6 \text{ square meters, } r = ?$$

   Solution: We know the formula for the area of a sector is:
   $$A = \frac{1}{2}r^2\theta,$$
   plug in the values of A and θ, we get:
   $$6 = \frac{1}{2}\frac{1}{5}r^2,$$
   $$r^2 = 6 \cdot 2 \cdot 5 = 60,$$
   $$r = \sqrt{60} = 2\sqrt{15}(m).$$

2. (4 points.) Find the exact value of:
   $$3\sec\frac{\pi}{4} - 4\cot\frac{\pi}{3}$$

   Solution: Since $\sec\frac{\pi}{4} = \sqrt{2}$, and $\cot\frac{\pi}{3} = \frac{\sqrt{3}}{3}$, we get:
   $$3\sec\frac{\pi}{4} - 4\cot\frac{\pi}{3} = 3\sqrt{2} - 4\frac{\sqrt{3}}{3}.$$