Math 1060 Name Yukon Zipperer

Quiz 1—Section 5.1

Instructions: You may use your book or your notes, but not another person. However, if you cannot confidently and correctly complete this quiz unaided, it is an indication that you are not ready for the exam. No internet or graphing calculator is allowed. **SHOW YOUR WORK** on **all** problems for credit! Please write legibly, label your answers when necessary, and circle your answers.

1. Find an angle between 0 and 2π that is coterminal with the given angle: $-\frac{16\pi}{5}$. Remember to show your work for credit!

$\frac{2\pi}{1}\cdot\frac{5}{5}=\frac{10\pi}{5}$ $-\frac{16\pi}{5}+\frac{10\pi}{5}$ $-\frac{6\pi}{5}+\frac{10\pi}{5}$ $\boxed{\frac{4\pi}{5}}$

2. **The radius of each wheel of a car is 15 inches. If the wheels are turning at the rate of 3 revolutions per second, how fast is the car moving in miles per hour?**

3rev/s $L=\frac{s}{t}$ $w=\frac{\theta}{t}$ $L=wr$

$\cdot 2\pi$

$6\pi/s$

$360\pi/m$

$21600\pi/hr$ $\cdot 15$

$324000\pi in/hr$

$\frac{324000\pi}{12}$

$\$4823.0017ft/hr$

$\frac{\$4823.0017}{5280}$

16.065 miles/hour

3. **The arm and blade of a windshield wiper have a total length of 30 inches from the pivot point. If the blade section is 24 inches long and the wiper sweeps out an angle of 140°, how much window area can the blade clean?**

2 sections

$\frac{140}{360}\cdot\frac{\pi r^2}{30}=\frac{126000\pi}{360}$ $\frac{12600\pi}{36}=3500\pi$

Lg section

$3500\pi-14\pi$

3486π

5m circle

$\frac{140}{360}\cdot\pi r^2$ $\frac{36\pi\cdot 140}{360}$ $\frac{5040\pi}{360}=14\pi$

The blade can clean $\boxed{3486\pi in^2}$