

# EE361 Microcomputer-Based Digital Design

## Quiz 3

OPEN BOOK, OPEN NOTES.

Name: \_\_\_\_\_

Section: \_\_\_\_\_

Date: 17 October 2008

1. Figure 1 shows a wheel rolling in a clockwise manner along a horizontal surface, from left to right. The radius of the wheel is  $r = 3$  cm. The wheel is driven by a stepper motor under control of a PIC16F884. The stepper motor gives 720 steps/revolution. The processor drives it using half-step control.

What is the required period required between successive half-steps to make the wheel advance with a velocity  $v = 40$  cm/s?

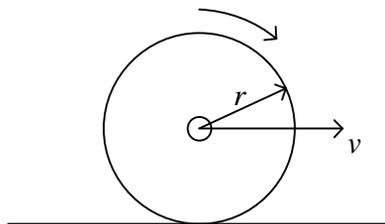


Figure 1: A Rolling Wheel