

# Physics 1114 - General Physics I

Quiz #4 - 2012.08.29

## Solutions

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1. You have two circles  $A$  and  $B$ , circle  $A$  has a radius three times that of circle  $B$ . How are the corresponding areas and circumferences related?

For the areas:  $\text{Area}_A = \pi r_A^2$ ,  $\text{Area}_B = \pi r_B^2$ . But  $r_A = 3r_B$ , so  $\text{Area}_A = \pi (3r_B^2) = 9\pi r_B^2$ . Therefore, the area of circle  $A$  is  $3^2 = 9$  times that of circle  $B$ .

Next, for circumferences:  $C_A = 2\pi r_A$ ,  $C_B = 2\pi r_B$ , with  $r_A = 3r_B$ . Thus,  $C_A = 2\pi 3r_B = 3 \cdot 2\pi r_B$ . So the circumference of circle  $A$  is three times that of circle  $B$ .

2. Determine if velocity is positive or negative, and the same for acceleration, in the in-class demo performed at the beginning of the quiz.

Velocity was negative and acceleration was positive.