Physics 2305 28 January, 2000
Quiz 2—Form A

1. A coin of mass 15 g tied to a string moves (uniformly) in a complete circle of radius 1.0 m every 1.0 second. Its radial acceleration is:

A) 1.0 m/s^2
B) 5.9 m/s^2
C) 6.3 m/s^2
D) 39 m/s^2

2. A car travelling at a speed of 75.0 miles per hour is moving how many meters per second?

A) 13.0
B) 33.5
C) 75.0
D) 121

Useful constants and equations:

$x = (1/2)\, a\, t^2 + v_o\, t + x_o$ $\qquad a_r = v^2 / r$
$v = v_o + a\, t$ $\qquad T = 2\, \pi\, r\, /\, v$
$v^2 = v_o^{\,2} + 2\, a\, (x - x_o)$ $\qquad \Sigma\, \mathbf{F} = m\, \mathbf{a}$
$g = 9.8\ m/s^2$ $\qquad$ 1 mile = 1.608 km

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Quiz 2—Form B

1. A satellite in low-earth orbit experiences a centripetal acceleration close to *g*. If it's in a circular orbit of radius 6500 km, what is its orbital velocity?

A) 2.5 km/s
B) 8.0 km/s
C) 25 km/s
D) 64 km/s

2. The speed of light is 3.00×10^8 m/s. What is it in km/h?

A) 1.86×10^5
B) 3.00×10^5
C) 3.00×10^8
D) 1.08×10^9

Useful constants and equations:

$x = (1/2)\, a\, t^2 + v_o\, t + x_o$ $\qquad$ $a_r = v^2 / r$
$v = v_o + a\, t$ $\qquad$ $T = 2\, \pi\, r\, /\, v$
$v^2 = v_o^{\,2} + 2\, a\, (x - x_o)$ $\qquad$ $\Sigma\, \mathbf{F} = m\, \mathbf{a}$
$g = 9.8$ m/s^2 $\qquad$ 1 mile = 1.608 km

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Quiz 2—Form C

1. Which of the following could not be correct?

A) $a = t / v^2$
B) $v = (gr)^{1/2}$
C) $t = \Delta x / v_o$
D) $y = v^2 / g$

2. The speed of light is 3.0×10^8 m/s. One furlong is 220 yards (or 201 m). A fortnight is 2 weeks. What is the speed of light in furlongs per fortnight?

A) 1.2
B) 1.8×10^{12}
C) 3.6×10^{14}
D) 7.3×10^{16}

Useful constants and equations:

$x = (1/2)\, a\, t^2 + v_o\, t + x_o$ $\qquad a_r = v^2 / r$
$v = v_o + a\, t$ $\qquad T = 2\, \pi\, r\, /\, v$
$v^2 = v_o^{\,2} + 2\, a\, (x - x_o)$ $\qquad \Sigma\, \mathbf{F} = m\, \mathbf{a}$
$g = 9.8$ m/s^2 $\qquad$ 1 mile = 1.608 km