Physics 2205 9 September, 1999
Quiz 4—Form A

1. A car accelerates from 36 km/h (10 m/s) to 72 km/h (20 m/s) in 100 m. What is its acceleration?

a. 6.0 m/s^2 c. 1.5 m/s^2
b. 2.5 m/s^2 d. 0.5 m/s^2

2. Susan hits a fly-ball into right field, and it stays in the air for 4.0 seconds. What was its initial velocity upward? (Assume its initial height is negligible.)

a. 160 m/s c. 20 m/s
b. 40 m/s d. 5 m/s

Useful equations: $x = (1/2)\, a\, t^2 + v_o\, t + x_o$
$v = v_o + a\, t$
$v^2 = v_o^2 + 2\, a\, (x - x_o)$
$g = 9.8\ m/s^2$

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Quiz 4—Form B

1. If a car decelerates from 72 km/h (20 m/s) to zero in 4.0 seconds, what g-force do the occupants experience in the horizontal direction?

a. 0.5 g
b. 1.0 g
c. 5 g
d. 10 g

2. How long will it take a bomb to drop from an altitude of 1000 m to the ground? Its initial velocity is 300 m/s in the horizontal direction.

a. 0.07 sec
b. 14 sec
c. 51 sec
d. 204 sec

Useful equations:

$$x = (1/2)\, a\, t^2 + v_o\, t + x_o$$

$$v = v_o + a\, t$$

$$v^2 = v_o^2 + 2\, a\, (x - x_o)$$

$$g = 9.8\ m/s^2$$