Physics 2205 7 October, 1999
Quiz 6—Form A

1. A 2.0 kg mass slides horizontally with a velocity of 2.0 m/s into a spring. If the spring compresses a maximum of 5.0 cm, what is the spring constant?

A) 0.32 N/m
B) 2.0 N/m
C) 1600 N/m
D) 3200 N/m

2. Pierre (mass 80 kg) stands on a frictionless surface and catches a 1.5 kg ball which is travelling horizontally at 10 m/s. How fast is Pierre sliding after the catch?

A) 0.18 m/s
B) 1.5 m/s
C) 10 m/s
D) 15 m/s

$W = F\ x$ $\quad p = m\ v$
$U_g = m\ g\ y$ $\quad F_g = m\ g$
$U_e = \frac{1}{2}\ k\ x^2$ $\quad F_e = -\ k\ x$
$K = \frac{1}{2}\ m\ v^2$ $\quad F_{fr} = \mu\ F_N$

Physics 2205 7 October, 1999
Quiz 6—Form B

1. A block slides down a frictionless inclined plane from a height of 0.60 m onto a flat surface where $\mu_k = 0.50$. How far does it slide horizontally before stopping?

A) 0.3 m
B) 0.4 m
C) 1.2 m
D) 1.5 m

2. What is the recoil velocity of a 4.4 kg rifle firing a 12 g bullet with a muzzle velocity of 850 m/s?

A) 0.31 m/s
B) 2.3 m/s
C) 8.5 m/s
D) 850 m/s

$W = F\ x$ $\quad p = m\ v$
$U_g = m\ g\ y$ $\quad F_g = m\ g$
$U_e = \frac{1}{2}\ k\ x^2$ $\quad F_e = -\ k\ x$
$K = \frac{1}{2}\ m\ v^2$ $\quad F_{fr} = \mu\ F_N$