1. Dennis uses a cord to accelerate a 1.50 kg bag upward at a rate of 1.20 m/s$^2$. What is the tension in the cord?

   A) 0 N  
   B) 12.9 N  
   C) 14.7 N  
   D) 16.5 N

2. Jody holds a key vertically from a thin chain while she accelerates her car. If the acceleration is 6.2 m/s$^2$, what angle does the chain make from the vertical?

   A) 32°  
   B) 39°  
   C) 51°  
   D) 58°

Useful constants and equations:

\[ \Sigma F = m \ a \]
\[ a_r = v^2/ \ r \]
\[ F_g = m \ g \]
\[ g = 9.8 \ m/s^2 \]
Physics 2305
Quiz 3—Form B

1. A 2.0 kg block rests on a plane inclined 35° from the horizontal. What force (parallel to the plane) is required to hold the block in place?

   A) 11 N
   B) 14 N
   C) 16 N
   D) 20 N

2. Eduardo is spinning a 2.0 kg brick in a horizontal circle of radius 1.0 m at a speed of 2.0 m/s. The acceleration of the brick is:

   A) 2.0 m/s²
   B) 4.0 m/s²
   C) 8.0 m/s²
   D) 16 m/s²

Useful constants and equations:

\[ \sum F = m \, a \]

\[ a_r = \frac{v^2}{r} \]

\[ F_g = m \, g \]

\[ g = 9.8 \, \text{m/s}^2 \]
Physics 2305  
Quiz 3—Form C  

1. A block of mass \( m \) slides down a frictionless incline tilted an angle \( \theta \) from the horizontal from rest. Its acceleration is:

A) \( g \sin \theta \)  
B) \( g \cos \theta \)  
C) \( g \tan \theta \)  
D) \( mg \)  

2. What is the angle between the vectors \( \mathbf{p} = 1.0 \mathbf{i} - 2.0 \mathbf{j} \) and \( \mathbf{s} = 2.0 \mathbf{i} + 1.5 \mathbf{k} \)?

A) 37°  
B) 69°  
C) 80°  
D) 90°  

Useful constants and equations:

\[ \Sigma \mathbf{F} = m \mathbf{a} \]  
\[ a_r = \frac{v^2}{r} \]  
\[ F_g = m \ g \]  
\[ g = 9.8 \text{ m/s}^2 \]  
\[ \mathbf{a} \cdot \mathbf{b} = ab \cos \theta = a_x b_x + a_y b_y + a_z b_z \]