1) An object with a mass m slides down a rough 37° inclined plane where the coefficient of kinetic friction is 0.20. If the plane is 10 m long and the mass starts from rest, what will be its speed at the bottom of the plane?

1) _____

2) An object with a mass m slides down a rough 37° inclined plane where the coefficient of kinetic friction is 0.20. What is the acceleration of the object?

2) _____

3) A wooden block slides directly down an inclined plane, at a constant velocity of 6.0 m/s What is the coefficient of kinetic friction, if the plane makes an angle of 25° with the horizontal?

3) _____

4) A block lies on a smooth inclined plane tilted at an angle of 35° to the horizontal.
(a) Determine the block's acceleration as it slides down the inclined plane.
(b) If the block started from rest 8.5 m up the incline from its base, determine the block's speed when it reaches the bottom of the incline.
(c) How long did it take the block to reach the bottom of the inclined plane?

4) _____

5) A mass is placed on a smooth inclined plane with an angle of 37° to the horizontal. If the inclined plane is 5.0-m long, how long does it take for the mass to reach the bottom of the inclined plane after it is released from rest?

5) _____

Figure 6–14
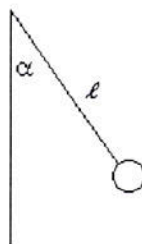
6) A 20.0-gram mass is attached to a 120 cm-long string as shown in Figure 6-14. The tension in the string is measured to be 0.200 N. What is the angle α?

6) _____
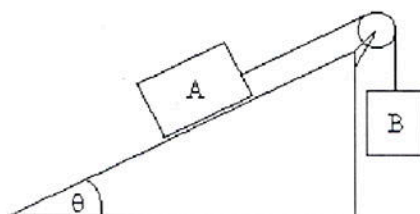
Figure 6–12

7) Two masses are connected by a string which goes over an ideal pulley as shown in Figure 6-12. Block A has a mass of 3.00 kg and can slide along a rough plane inclined 30.0° to the horizontal. The coefficient of kinetic friction between block A and the plane is 0.400. Block B has a mass of 2.77 kg. What is the acceleration of the blocks?

7) _____

8) Two masses are connected by a string which goes over an ideal pulley as shown in Figure 6-12. Block A has a mass of 3.00 kg and can slide along a rough plane inclined 30.0° to the horizontal. The coefficient of static friction between block A and the plane is 0.400. Block B has a mass of 2.77 kg. What is the tension in the string?

8) _____

Figure 6–13
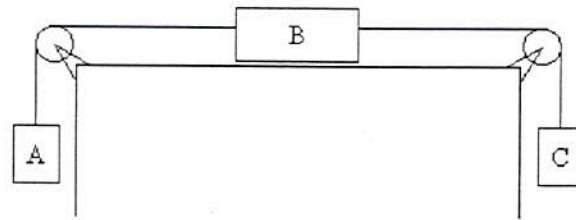
9) Refer to Figure 6–13. Block A has a mass of 3.00 kg, block B has a mass of 5.00 kg and block C has a mass of 2.00 kg. The pulleys are ideal and there is no friction between block B and the table. What is the acceleration of the masses?

9) _____

10) Refer to Figure 6–13. Block A has a mass of 6.00 kg, block B has a mass of 4.00 kg and block C has a mass of 3.00 kg. The pulleys are ideal and there is no friction between block B and the table. What is the acceleration of the masses?

10) _____

11) Refer to Figure 6–13 Block A has a mass of 5.00 kg, block B has a mass of 3.00 kg and block C has a mass of 2.00 kg. The pulleys are ideal and there is no friction between block B and the table. What is the tension in the string connecting blocks B and C?

11) _____

12) Refer to Figure 6–13. Block A has a mass of 5.00 kg, block B has a mass of 3.00 kg and block C has a mass of 2.00 kg. The pulleys are ideal and there is no friction between block B and the table. What is the tension in the string connecting blocks A and B?

12) _____

Answer Key
Testname: UNTITLED1

1) 9.3 m/s
2) 4.3 m/s^2
3) 0.47
4) (a) The block is acted on by the force of gravity directed downward and the normal force due to the inclined plane directed perpendicular to the inclined surface.
   (b) 5.6 m/s^2
   (c) 9.7 m/s
   (d) 1.7 s
5) 1.3 s
6) 11.2°
7) 0.392 m/s^2
8) 26.1 N
9) 0.981 m/s^2
10) 2.26 m/s^2
11) 25.5 N
12) 34.3 N