Q1 Q0 Express speed of sound, 330 m/s in miles/h .
Q0 (1 mile = 1609 m (
Q0
A1 738 miles/h
A2 330 miles/h
A3 147 miles/h
A4 0.205 miles/h
A5 980 miles/h
Q0
Q2 Q0 A cylindrical can, 6.00 inches high and 3.00 inches in diameter
Q0 is filled with water. Density of water is 1.00 g/cm**3. What is
Q0 the mass of water in the can in gram ?
Q0 (1 inch = 2.54 cm .(
Q0
A1 695 g
A2 277 g
A3 182 g
A4 107 g
A5 2780 g
Q0
Q3 Q0 A particle moves along the x axis from Xi to Xf .
Q0 Of the following values of the initial and final
Q0 coordinates, which one results in the displacement
Q0 with the largest magnitude?
Q0
A1 Xi = -4 m , Xf = 4 m
A2 Xi = -4 m , Xf = -8 m
A3 Xi = -4 m , Xf = 2 m
A4 Xi = 4 m , Xf = -2 m
A5 Xi = 4 m , Xf = 6 m
Q0
Q4 Q0 Each of the following four particles move along an
Q0 x axis. Their coordinates as functions of time
Q0 are given by:
Q0 particle 1: x(t) = 3.5 - 2.7*t**4
Q0 particle 2: x(t) = 3.5 + 2.7*t**3
Q0 particle 3: x(t) = 3.5 + 2.7*t**2
Q0 particle 4: x(t) = 3.5 - 3.4*t - 2.7*t**2
Q0 Which of these particles have constant acceleration?
Q0
A1 Only 3 and 4
A2 All four
A3 Only 1 and 2
A4 Only 2 and 3
A5 None of them
Q0
Q5 Q0 Starting at time t = 0, an object moves along a straight line.
Q0 Its coordinate in meters is given by x(t) = 75*t - 1.0*t**3 ,
Q0 where t is in s. When velocity (v) of the object = 0, the value
Q0 of its acceleration is :
Q0
A1 -30 m/s**2
A2 0 m/s**2
A3 -75 m/s**2
A4 -9.8 m/s**2
A5 100 m/s**2
Q0

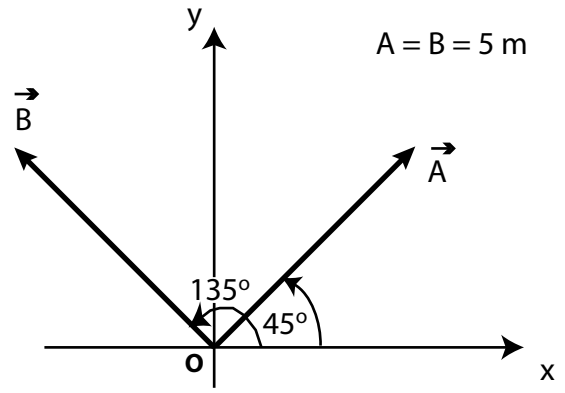

Figure 1

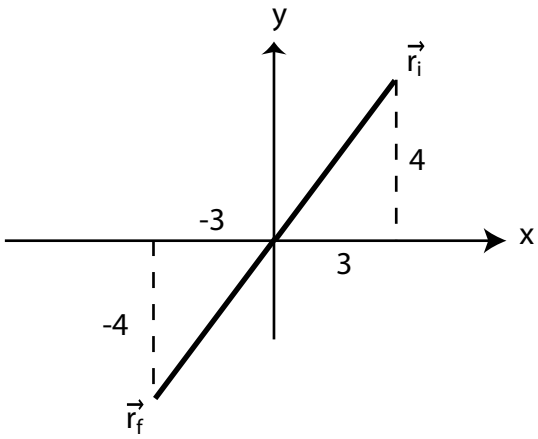

Figure 2

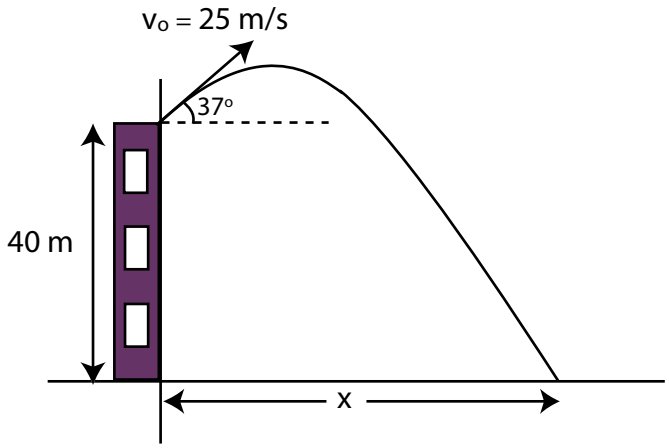

Figure 3

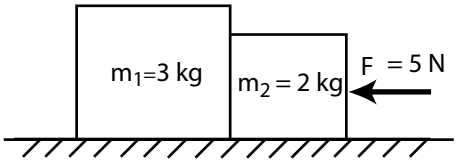

Figure 4

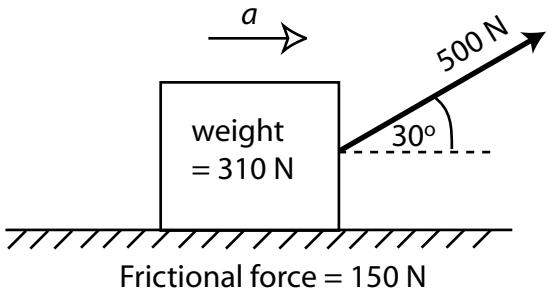

Figure 5

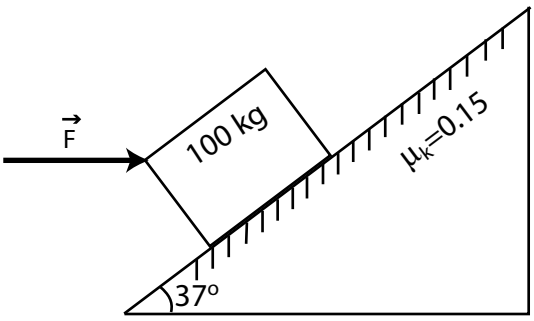

Figure 6

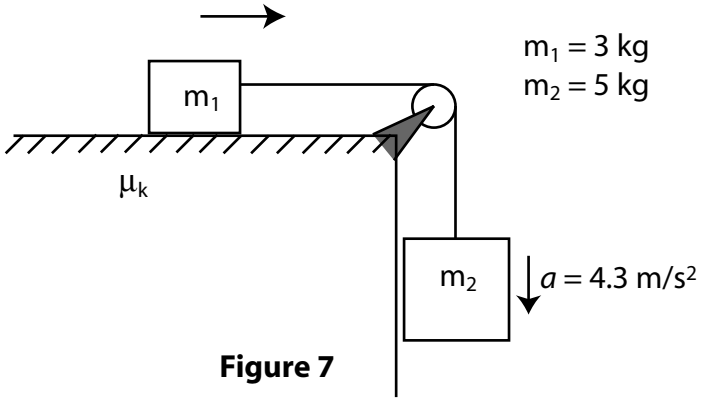

Figure 7

Q6 Q0 A ball is dropped from the top of a building having height H.
Q0 If it hits the ground 2.1 s later, find the height of the
Q0 building, H.
Q0
A1 22 m
A2 35 m
A3 76 m
A4 96 m
A5 12 m
Q0
Q7 Q0 Two vectors A and B are shown in Fig 1. Each vector has
Q0 a magnitude of 5.0 m. Find the magnitude of the resultant
Q0 vector R = A + B and the angle (theta) between R and the
Q0 positive x-axis (counter clockwise.(
Q0
A1 magnitude = 7.1 m, theta = 90 degrees
A2 magnitude = 10 m, theta = 45 degrees
A3 magnitude = 10 m, theta = 30 degrees
A4 magnitude = 7.1 m, theta = 0 degree
A5 magnitude = 5.0 m, theta = 90 degrees
Q0
Q8 Q0 Vector A has components Ax = 4.0, Ay = -3.0 .
Q0 Vector B has components Bx = 8.0, By = 6.0.
Q0 Find the angle between the two vectors.
Q0
A1 74   degrees
A2 60   degrees
A3 0   degree
A4 90   degrees
A5 45   degrees
Q0
Q9 Q0 Three vectors are A = 1.00 i + 2.00 j -3.00 k ,
Q0 B = 3.00 k and C = 6.00 i - 7.00 j
Q0 Find 2C.(A X B.(
Q0
A1 114
A2 7.00 i - 5.00 j
A3 30 i
A4 -114
A5 120
Q0
Q10Q0 The position of a particle is initially
Q0 ri = (3.0 m)i + (4.0 m)j, and 10 s later it
Q0 is rf = -(3.0 m)i - (4.0 m)j (see Fig 2). What is
Q0 its average velocity during this time interval   ?
Q0
A1 (-0.6i - 0.8j) m/s
A2 (0.6i + 0.8j) m/s
A3 0 m/s
A4 10 m/s, at angle 45 degree
A5 10 m/s, at angle -45 degree
Q0
Q11Q0 A ball is kicked from the roof of a building
Q0 with an initial velocity of 25 m/s at an angle
Q0 of 37 degrees to the horizontal(see Fig 3). How far
Q0 from the base of the building will the ball land?
Q0 (The height of the building is 40 m(
Q0
A1 95 m
A2 66 m
A3 34 m

A4 48 m
A5 133 m
Q0
Q12Q0 A satellite is placed in a circular orbit 8.0*10**3 km from
Q0 the center of the earth. If it takes the satellite 2.0 hours
Q0 to complete one revolution, what is its centripetal
Q0 acceleration?
Q0
A1 6.1 m/s**2 towards the center of the earth
A2 6.1 m/s**2 away from the center of the earth
A3 2.4 m/s**2 toward the center of the earth
A4 2.4 m/s**2 away from the center of the earth
A5 almost zero
Q0
Q13Q0 A boat is sailing due North at a speed of 4.0 m/s with
Q0 respect to the water of a river. If the water is
Q0 moving due East at a speed of 3.0 m/s relative to the
Q0 ground, what is the velocity of the boat relative to
Q0 the ground?
Q0
A1 5.0 m/s making an angle 37 degrees east of north
A2 5.0 m/s making an angle 53 degrees east of north
A3 5.0 m/s east of north
A4 1.0 m/s west of south
A5 1.0 m/s west
Q0
Q14Q0 Two blocks are in contact on a frictionless table .
Q0 A horizontal force is applied to block (m2), as shown
Q0 in Fig. 4. If m1=3.0 kg, m2=2.0 kg, and F=5.0 N, find the
Q0 magnitude of the force between the two blocks.
Q0
A1 3.0 N
A2 2.0 N
A3 4.0 N
A4 5.0 N
A5 4.7 N
Q0
Q15Q0 A worker drags a crate across a factory floor by pulling on
Q0 a rope tied to the crate as shown in Fig.5. The worker exerts
Q0 a force of 500 N on the rope, which is inclined at 30 degrees
Q0 to the horizontal, and the floor exerts a frictional force of
Q0 150 N. Calculate the magnitude of the acceleration of the crate
Q0 if its weight is 310 N.
Q0
A1 8.9 m/s**2
A2 6.0 m/s**2
A3 7.0 m/s**2
A4 2.0 m/s**2
A5 12 m/s**2
Q0
Q16Q0 In Fig. 6 a 100 kg block is pushed at a constant speed up
Q0 the rough 37 degrees ramp by a horizontal force F.
Q0 The coefficient of kinetic friction between block and
Q0 surface is 0.15. What is the magnitude of force F?
Q0
A1 998 N
A2 660 N
A3 450 N
A4 570 N
A5 1850 N
Q0

Q17Q0 A block (m1= 3.0 kg) on a rough horizontal plane is connected
Q0 to a second block (m2=5.0 kg) by a cord over a massless pulley.
Q0 Calculate the coefficient of kinetic friction between the
Q0 block m1 and the table if the acceleration of the descending
Q0 block m2 is 4.3 m/s**2 (see Fig 7.(
Q0
A1 0.50
A2 0.25
A3 0.35
A4 0.75
A5 0.65
Q0
Q18Q0 A car is rounding a flat curve of radius R=220 m with speed v
Q0 = 94 km/h. What is the magnitude of the force exerted by the
Q0 seat on the passenger whose mass m is 85 kg.
Q0
A1 263 N
A2 325 N
A3 455 N
A4 650 N
A5 100 N
Q0
Q19Q0 An object moving in a circle at constant speed:
Q0
A1 has an acceleration of constant magnitude.
A2 has a constant acceleration.
A3 has a constant velocity .
A4 is held to its path by centrifugal force (a force directed
A4 away from the center .(
A5 has an acceleration that is tangent to the circle.
Q0
Q20Q0 Acceleration is always in the direction:
Q0
A1 of the net force .
A2 of the initial velocity .
A3 of the final velocity.
A4 of the displacement.
A5 opposite to the frictional force.