Q1 Q0 A solid lead cylinder has a mass of 56.5 kg and radius of 35 cm.
ch1Q0 Find the height of the cylinder.
Q0 (The density of lead is 11.3 g/cm**3)
Q0
A1 1.3 cm
A2 0.65 cm
A3 1.6 cm
A4 3.2 cm
A5 2.6 cm
Q0
Q2 Q0 An object is thrown at t=0 vertically upward with a velocity of
ch2Q0 48.9 m/s. What is its average velocity between t=2 s and t=3 s?
Q0 [Ignore air resistance]
Q0
A1 24.4 m/s
A2 29.3 m/s
A3 16.3 m/s
A4 19.5 m/s
A5 -9.8 m/s
Q0
Q3 Q0 A stone is released from rest from a height H. It takes 2.00
ch2Q0 seconds to fall a vertical distance of H/2. What is the time
Q0 needed to fall the total vertical distance (H)?
Q0
A1 2.83 s
A2 4.00 s
A3 3.76 s
A4 2.00 s
A5 3.42 s
Q0
Q4 Q0 A car is traveling along a straight road at a velocity of
ch2Q0 150 km/h. The driver hits the brakes and brings the car to a
Q0 complete stop (with constant acceleration) after traveling a
Q0 distance = x in 6 seconds. Find x.
Q0
A1 125 m
A2 150 m
A3 600 m
A4 42 m
A5 250 m
Q0
Q5 Q0 An electron moving along the x axis has a position given by
ch2Q0 x = 40 t - 10 t**2, where x is in m and t is in s. How far is
Q0 the electron from the origin when it momentarily stops?
Q0
A1 40 m
A2 20 m
A3 80 m
A4 50 m
A5 0 m
Q0
Q6 Q0 Two vectors A and B have the components in meters, Ax= -4.0,
ch3Q0 Ay = 3.0, and Bx = 5.0, By = 12. Find the angle between the
Q0 directions of A and B.
Q0
A1 76 degrees.
A2 90 degrees.
A3 140 degrees.
A4 104 degrees
A5 14 degrees
Q0
Q7 Q0 Three vectors A, B, and C are related by C = A + B.
ch3Q0 Which diagram in Fig 1 illustrates this relationship?
Q0
A1 II
A2 I
A3 III
A4 IV
A5 V
Q0
Q8 Q0 A ball is thrown horizontally with velocity Vo from the top of
ch4Q0 a buiding 35 m high. The ball strikes the ground at a horizontal
Q0 distance of 80 m from the base of the building. Find Vo.
Q0
A1 30 m/s
A2 20 m/s
A3 10 m/s

A4 40 m/s
A5 45 m/s
Q0
Q9 Q0 At t=0, a projectile is thrown from the ground with a velocity
ch4Q0 Vo = (Vox i + Voy j) m/s. At time (t), the projectile has the
Q0 velocity V = (25 i - 4.9 j) m/s.
Q0 Which of the following statements is correct?
Q0
A1 The projectile has already passed through the highest point
A1 of its trajectory.
A2 Voy must be negative.
A3 Vox must be zero.
A4 The projectile is accelerating along the x-direction.
A5 The projectile did not pass yet through the highest point
A5 of its trajectory.
Q0
Q10Q0 A boy whirls a stone, tied to a string, in a uniform horizontal
ch4Q0 circular motion. Which of the following statements is WRONG?
Q0
A1 The velocity of the stone is constant.
A2 The magnitude of the tension in the string is constant.
A3 The magnitude of its centripetal acceleration is constant.
A4 The speed of the stone is constant.
A5 Its displacement is zero when it completes a circle.
Q0
Q11Q0 A car travels at a speed of 60.0 km/h on a horizontal road while
ch4Q0 rain is falling vertically with velocity V with respect to the
Q0 ground. As viewed by the driver of the car, the rain appears
Q0 to be falling at an angle of 60 degrees from the vertical.
Q0 Find V.
Q0
A1 34.6 km/h
A2 60.0 km/h
A3 17.8 km/h
A4 104 km/h
A5 0 km/h
Q0
Q12Q0 At t=0, a particle has a position vector ro = (4.0 i - 6.0 j) m,
ch4Q0 and 2.0 s later, r = (10 i - 2.0 j) m. What is its average
Q0 velocity of the particle during the 2.0 s?
Q0
A1 (3.0 i + 2.0 j) m/s
A2 (2.0 i - 3.0 j) m/s
A3 (6.0 i - 2.0 j) m/s
A4 (6.0 i + 4.0 j) m/s
A5 (-3.0 i - 2.0 j) m/s
Q0
Q13Q0 A 2.0 kg mass has a velocity of (2.0 i + 2.0 j) m/s at one
ch5Q0 instant. Four seconds later its velocity is (2.0 i + 14 j) m/s.
Q0 Assuming that the object is under the influence of a single
Q0 constant force, find this force.
Q0
A1 (6.0 j) N
A2 (4.0 i + 4.0 j) N
A3 (4.0 i + 28 j) N
A4 (7.2 j) N
A5 (-9.8 j) N
Q0
Q14Q0 An object is hung from a spring balance attached to the ceiling
ch5Q0 of an elevator. The balance reads 70 N when the elevator is
Q0 at rest. What is the reading of the spring balance when the
Q0 elevator is moving upwards with an acceleration of 4.9 m/(s**2)?
Q0
A1 105 N
A2 70 N
A3 35 N
A4 140 N
A5 98 N
Q0
Q15Q0 A 3.0 kg block is placed on top of a 9.0 kg block as shown in
ch5Q0 Fig 2. A horizontal force F = 20 i N is applied to the 9.0 kg
Q0 block, which slides on the frictionless surface AB. Assuming
Q0 that the 3.0 kg block does not slip, find the frictional force
Q0 exerted by the 9.0 kg block on the 3.0 kg block.
Q0
A1 5.0 i N
A2 -5.0 i N

A3 20   i N
A4 -20   i N
A5 0
Q0
Q16Q0 Two blocks, of equal mass = M, rest on frictionless surfaces,
ch5Q0 as shown in Fig 3. Assuming the pulleys to be light and
Q0 frictionless, calculate the time required for block A to move
Q0 0.5 m down the plane, starting from rest.
Q0
A1 0.64 s
A2 1.5 s
A3 0.23 s
A4 3.1 s
A5 2.1 s
Q0
Q17Q0 Consider a particle in motion while the net external force on it
ch5Q0 is zero. Which of the following statements is CORRECT in this
Q0 case?
Q0
A1 The particle must be moving at a constant velocity.
A2 The particle must be moving at a constant speed in a circle.
A3 The particle will come to rest after some time.
A4 The velocity of the particle is always perpendicular to
A4   the direction of the motion.
A5 The particle has an acceleration of 9.8 m / (s**2).
Q0
Q18Q0 A 2.0 kg block is initially at rest on a horizontal surface.
ch6Q0 A 15 N horizontal force and a vertical force P are applied to
Q0 the block as shown Fig 4. If the coefficient of static friction
Q0 for the block and the surface is 0.60, what is the magnitude of
Q0 force P that makes the block start moving?
Q0
A1 5.4 N
A2 25   N
A3 19.6 N
A4 44.6 N
A5 0   N
Q0
Q19Q0 A 0.50 kg ball tied to the end of a string 100 cm in length
ch6Q0 swings in a vertical circle with a constant speed of 9.2 m/s.
Q0 What is the tension in the string when the ball is at the
Q0 bottom of the circle?
Q0
A1 47 N
A2 4.9 N
A3 42 N
A4 37 N
A5 0 N
Q0
Q20Q0 A bicyclist travels in a 50 m radius-circular horizontal road.
ch6Q0 Find his maximum speed without slipping if the coefficient of
Q0 static friction between the bicycle and the road is 0.25.
Q0
A1 11 m/s
A2 123 m/s
A3 1.6 m/s
A4 22 m/s
A5 3.2 m/s

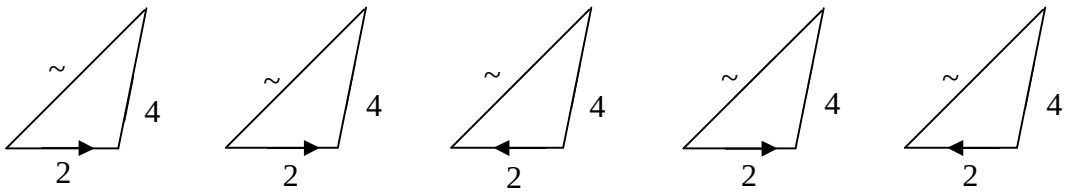

Figure 1

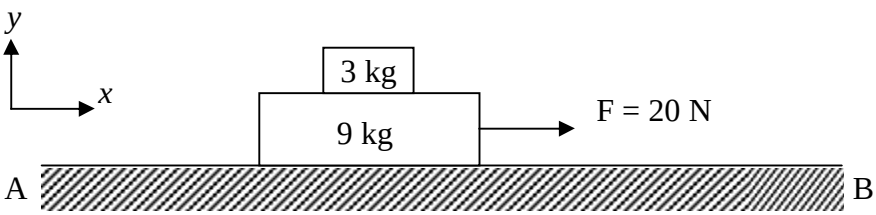

Figure 2

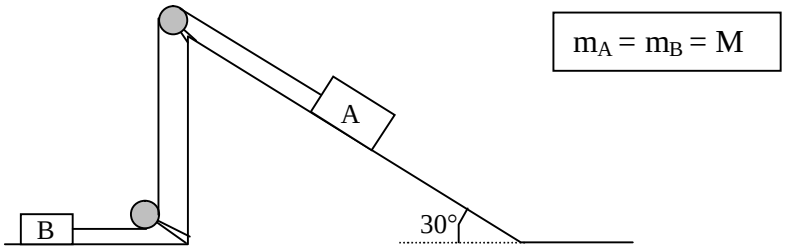

Figure 3

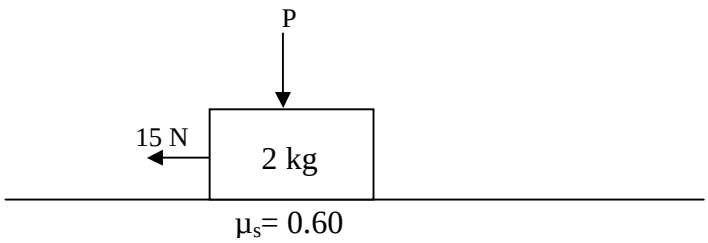

Figure 4