Q1 Q0 A car travels at 40.0 km/h for 2.00 h , then at
ch Q0 50.0 km/h for 1.00 h, and finally at 20.0 km/h
2. Q0 for 0.500 h. What is the average speed of the car ?
***Q0
A1 40.0 km/h
A2 36.7 km/h
A3 55.0 km/h
A4 45.0 km/h
A5 31.6 km/h
Q0
Q2 Q0 Which of the following statements is CORRECT?
ch Q0
3. A1 The magnitude of a vector cannot be negative.
***A2 The magnitude of the displacement of a particle can be
A2 greater than the distance traveled.
A3 It is possible to add a vector quantity to a
A3 scalar quantity.
A4 When the result of adding two vectors gives zero,
A4 then these vectors have different magnitudes.
A5 An object moved once around a given circle has
A5 a non-zero displacement.
Q0
Q3 Q0 A stone is thrown horizontally from the top of
ch Q0 a building, of height H, with an initial speed of v0 = 15 m/s.
4. Q0 Find the speed (v) of the stone 2.0 s after it is thrown
***Q0 (see Fig. 5).
Q0
A1 25 m/s
A2 20 m/s
A3 15 m/s
A4 38 m/s
A5 0 m/s
Q0
Q4 Q0 A 2.0 kg block slides down a frictionless 15 degrees inclined
ch Q0 plane. A force, F, acting parallel to the incline is applied
5. Q0 to the block (see Fig. 1). The acceleration of the block is
***Q0 1.5 m/s**2 down the incline. What is the magnitude of F?
Q0
A1 2.1 N
A2 8.1 N
A3 3.0 N
A4 1.0 N
A5 16 N
Q0
Q5 Q0 A certain brand of house paint claims a coverage of 500
ch Q0 ft**2 / gal (1 ft = 30.48 cm ; 1 gal = 3.78 liter). Express
1 Q0 this quantity in m**2/liter.
Q0
A1 12.3
A2 5.60
A3 7.43
A4 3.54
A5 18.1
Q0
Q6 Q0 If the position of a particle is given by:
ch Q0 x = 10*t - t**3
2 Q0 where t is in seconds and x in meters. Find the average
Q0 velocity between t = 1 and t = 3 s.
Q0
A1 -3.0 m/s
A2 6.0 m/s
A3 -4.0 m/s
A4 -2.5 m/s
A5 10 m/s
Q0
Q7 Q0 A jet-plane must reach a speed of 500 km / h on the runway
ch Q0 for take off. Starting from rest, what is the least constant
2 Q0 acceleration needed for take off from a 3.0 km runway?

Q0
A1 4.17 x 10**4 km/h**2
A2 1.60x 10**2 km/h**2
A3 9.81 km/h**2
A4 0 km/h**2
A5 7.82x 10**4 km/h**2
Q0

Q8 Q0 A boy throws a stone vertically downward with an initial
ch Q0 speed of 10.0 m/s from the top of a 30.0 m high building.
2 Q0 What is the speed of the stone when it hits the ground ?
Q0
A1 26.2 m/s
A2 9.81 m/s
A3 4.90 m/s
A4 31.5 m/s
A5 0 m/s
Q0

Q9 Q0 The angle between vector B = 4.0 j + 3.0 k, and the positive
ch Q0 y axis is approximately:
3 Q0
A1 37 degrees
A2 68 degrees
A3 53 degrees
A4 90 degrees
A5 0 degree
Q0

Q10Q0 Fig. 2 shows vectors A and B which have the same magnitudes.
ch Q0 Let C = A - B and let the x and y components of C be Cx and
3 Q0 Cy, respectively. What are the signs of Cx and Cy?
Q0
A1 Cx is negative and Cy is positive
A2 Cx is positive and Cy is positive
A3 Cx is negative and Cy is negative
A4 Cx is positive and Cy is negative
A5 Cx is zero and Cy is zero
Q0

Q11Q0 A car is moving with a speed of 18.0 m/s due north at one
ch Q0 moment and 35.2 m/s due east 8.00 s later. Over this time
4 Q0 interval, determine the average acceleration of the car.
Q0
A1 4.94 m/s**2 making an angle 27 degrees S of E
A2 4.94 m/s**2 making an angle 27 degrees N of E
A3 6.65 m/s**2 making an angle 27 degrees S of E
A4 6.65 m/s**2 making an angle 27 degrees N of E
A5 2.15 m/s**2 making an angle 63 degrees N of E
Q0

Q12Q0 Find the magnitude of the centripetal acceleration of a
ch Q0 particle on the tip of a fan blade, 0.150 m in radius,
4 Q0 rotating at 1200 revolutions every minute.
Q0
A1 2370 m/s**2
A2 9810 m/s**2
A3 4750 m/s**2
A4 6550 m/s**2
A5 1110 m/s**2
Q0

Q13Q0 A boat can travel with a velocity of 1.70 m/s in still
ch Q0 water (that is Vbw = 1.70 m/s). The boat heads (points)
4 Q0 across a river where the current is 0.75 m/s (that is Vwg =
4 Q0 0.75 m/s). What is the speed of the boat relative to the
Q0 ground?
Q0
A1 1.86 m/s
A2 0.75 m/s
A3 9.81 m/s
A4 4.90 m/s
A5 1.70 m/s
Q0

Q14Q0 Fig. (3) shows a circular path taken by a particle. The
ch Q0 particle is traveling clockwise around the circle. At one
4 Q0 instant, the velocity of the particle is
Q0 v = - 3*i + 3*j m/s
Q0 where i and j are unit vectors along the x and y axes,
Q0 respectively. In which quadrant is the particle traveling
Q0 at this instant?
Q0
A1 Quadrant (3)
A2 Quadrant (2)
A3 Quadrant (1)
A4 Quadrant (4)
A5 none of the other answers
Q0

Q15Q0 A 500 N man is riding in an elevator. At a certain instant his
ch Q0 feet push against the floor with a force of more than 500 N.
5 Q0 At this instant, the elevator may be:
Q0
A1 accelerating upward.
A2 accelerating downward
A3 moving downward at constant speed.
A4 not moving.
A5 moving upward at constant speed.
Q0

Q16Q0 Two men pull in opposite directions on the two ends of a light
ch Q0 rope. Each man pulls with a force 100 N. Find the tension in
5 Q0 the rope.
Q0
A1 100 N
A2 50 N
A3 200 N
A4 150 N
A5 141 N
Q0

Q17Q0 Two masses m1 = 10 kg, m2 = 5 kg are attached by a light string
ch Q0 that passes over a frictionless pulley of negligible mass
5 Q0 (Fig. 4). The mass m1 lies on a horizontal frictionless surface
Q0 and is acted on by a force F = 10 N. The mass m2 is:
Q0
A1 Falling with an acceleration of 2.7 m/s**2.
A2 Rising with an acceleration of 2.7 m/s**2.
A3 Falling with constant speed of 5.0 m/s.
A4 Staying stationary
A5 Falling with an acceleration of 9.8 m/s**2.
Q0

Q18Q0 A certain force when applied to mass m1 gives an acceleration
ch Q0 of 12.0 m/s**2 and when applied to mass m2 gives an acceleration
5 Q0 of 3.30 m/s**2. What acceleration would the same force give
Q0 when applied to an object of mass = (m1 + m2)?
Q0
A1 2.59 m/s**2
A2 6.00 m/s**2
A3 7.65 m/s**2
A4 8.70 m/s**2
A5 15.3 m/s**2
Q0

Q19Q0 A 5.0-kg block is pulled on a horizontal floor with a force
ch Q0 of 20 N that makes an angle 30 degrees with the horizontal
6 Q0 (see Fig. 6). If the block is pulled at a constant velocity,
Q0 what is the coefficient of kinetic friction between the block
Q0 and the floor?
Q0
A1 0.44
A2 0.31
A3 0.12
A4 0.53
A5 0.80
Q0

Q20Q0 One end of a 1.0-m string is fixed, the other end is attached
ch Q0 to a 2.0-kg stone. The stone swings in a vertical circle,
6 Q0 and has a speed of 4.0 m/s at the top of the circle.
Q0 The tension in the string at this point is approximately:
Q0
A1 12 N
A2 0 N
A3 20 N
A4 32 N
A5 9.8 N