Question **1**
Not yet answered
Marked out of 1.00

Bicyclists in the Tour de France reach average speeds of 58.0 kilometers per hour (km/h) on flat sections of the road. What is this speed in meters per second (m/s)?

Select one:
- 15.0 m/s
- 16.1 m/s
- 21.2 m/s
- 5.8 m/s
- 28.8 m/s

Question **2**
Not yet answered
Marked out of 1.00

A train is travelling on straight tracks. The velocity of the train is 25.0 m/s, due north. One minute later it's velocity is 16.0 m/s, due north. What is the train's average acceleration? (Determine both the magnitude and direction of the average acceleration.)

Select one:
- 0.15 m/s^2 due south
- 0.68 m/s^2 due north
- 0.68 m/s^2 due south
- 0.15 m/s^2 due north
- 0.15 m/s due south
- 0.15 m/s due north
- 0.68 m/s due north
- 0.68 m/s due south

Question **3**
Not yet answered
Marked out of 1.00

A ball is thrown vertically upward, which is the positive direction. A little later it returns to its point of release. The ball is in the air for a total time of 2.1 s. What was it's initial velocity? (Neglect air resistance.)

Select one:
- 21.0 m/s
- 4.54 m/s
- 10.3 m/s
- 5.15 m/s
- 20.6 m/s

Question **4**
Not yet answered
Marked out of 1.00

Initial velocity vector v_A has a magnitude of 3.00 meters per second and points 20.0^o north of east, while final velocity vector v_B has a magnitude of 6.00 meters per second and points 40.0^o south of east. Find the magnitude and the direction of the change in velocity vector Δv (which is the vector subtraction of the two vectors: final velocity vector minus initial velocity vector).

Select one:
- 3.34 m/s, 57.9^o south of east
- 7.94 m/s , 20.9^o south of east
- 5.19 m/s , 70.0^o south of east
- 6.7 m/s, 60.0^o north of east
- 3.34 m/s, 57.9^o north of east

Question **5**

Not yet answered

Marked out of 1.00

When a parachute opens, the air exerts a large drag force on it. This upward force is initially greater than the weight of the sky diver and, therefore, slows him down. The mass of the sky diver is 82.0 kg and the drag force has a magnitude of 850 N. What are the magnitude and direction of his acceleration?

Select one:

- ○ 1.3 m/s^2 (downward)
- ○ 0.57 m/s^2 (downward)
- ○ 1.3 m/s^2 (upward)
- ○ 10.4 m/s^2 (upward)
- ○ 0.57 m/s^2 (upward)

Question **6**

Not yet answered

Marked out of 1.00

A racing car moves at a constant speed of 215 km/h around a curve. The radius of the turn in this oval racing track is 132 m. The centripetal force keeps the car on the curve. Determine magnitude of the centripetal acceleration of the racing car in this circular section of the racing track.

Select one:

- ○ 27.6 m/s^2
- ○ 27.0 m/s^2
- ○ 19.5 m/s^2
- ○ 9.80 m/s^2
- ○ 19.6 m/s^2

Question **7**

Not yet answered

Marked out of 1.00

A person pulls a toboggan for a distance of 35.0 m along the snow with a rope directed 32.0° above the snow. The tension in the rope is 105.0 N. How much work is done on the toboggan by the tension force?

Select one:

- ○ 1947 J
- ○ 3675 J
- ○ 3117 J
- ○ 1176 J
- ○ 2755 J

Question **8**

Not yet answered

Marked out of 1.00

A water-skier is being pulled by a tow rope attached to a boat. As the driver pushes the throttle forward, the skier accelerates. A 72.0-kg water-skier has an initial speed of 5.10 m/s. Later, while moving along a straight line, the speed increases to 12.1 m/s. Determine the work done by the net external force acting on the skier.

Select one:

- ○ +4.33 kJ
- ○ +7.00 kJ
- ○ +3.49 kJ
- ○ +2.52 kJ
- ○ +8.67 kJ

Question **9**

Not yet answered

Marked out of 1.00

A spring is hung from the ceiling. When a 0.450-kg block is attached to the free end of the spring and released from rest, the block drops 5.0 cm before momentarily coming to rest, after which it moves back upward. What is the spring constant of the spring?

Select one:

- 88.2 N/m
- 11.3 N/m
- 22.5 N/m
- 176 N/m
- 48.2 N/m

Question **10**

Not yet answered

Marked out of 1.00

A tourist, who weighs 805 N, is walking through the woods and crosses a small horizontal bridge. The bridge rests on two concrete supports, one at each end. He stops one-fourth of the way along the bridge. Assume that the board of the bridge has negligible weight. What is the magnitude of the vertical force that a concrete support exerts on the bridge at the far end?

Select one:

- 590 N
- 295 N
- 201 N
- 603 N
- 195 N
- 585 N