

A student is testing their reaction time by dropping a ruler, suspended above their open hand, and catching it.

Hunter managed to catch the ruler at the 28 cm mark.

What was Hunter's reaction time to catch the ruler?

You walk 50m due North, followed by 80m NW.
What is your net displacement?

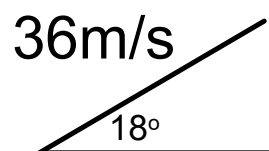
It took 3 minutes for the entire walk.

What is your average speed?

What is your velocity?

A golf ball is hit off of a 30m high cliff.

The golf ball has an initial velocity of 36m/s and an angle of elevation of 18 degrees.



- (a) How long is the ball in the air?
- (b) What is the max height of the ball?
- (c) How far from the base of the cliff does the ball travel?
- (d) What is the final velocity of the ball right before impact?
- (e) At what angle does the ball hit the ground?

The F_N of a 110kg person standing still is...

A van merges onto a highway on-ramp with a velocity of 90 km/h and accelerates at a rate of 2.6 m/s^2 for 6.0 s.

(a) What is the displacement of the van over this time?

(b) What is the final velocity of the van?

A 800g mass is suspended from a string attached to a metal stand.

- (i) What is the force of gravity on the mass?
- (ii) What is the tension force in the string?
- (iii) What is the Net force acting on the mass?

A student has tied together two sleds with a rope.

Two of his friends, with masses of 35.0 kg and 65.0 kg, are riding in the sleds, one in each (35.0 kg in the back, 65.0 kg in front).

The sleds accelerate with a magnitude of 1.25 m/s^2 .

The sleds experience a force of friction with a coefficient of kinetic friction of 0.22; assume that the masses of the sleds are negligible.

- (a) What is the applied force that moves the sleds?
- (b) What is the frictional force on the back sled?
- (c) What is the tension in the rope connecting the sleds?
- (d) The student pulling the sleds started from rest, runs for 4.00 s, and then lets the sleds go. How far will the sleds travel during the ENTIRE trip?

A 8.4 kg object is being pushed along a surface, causing it to accelerate at a rate of 1.8 m/s^2 .

The coefficient of kinetic friction is 0.32.

What is the magnitude of the horizontal force being applied to push the object?

A 75.0 kg person is standing on a bathroom scale inside an elevator.

The scale is calibrated in Newtons and measures the Normal force experienced by the person standing on the scale.

(a) What is the reading on the scale when the elevator is rising at a constant velocity of 4 m/s?

(b) What is the reading on the scale if the elevator is accelerating downward at 1.9 m/s^2 ?

A boat sails 3km @ 40 degrees, then turns and sails 5km at S10°E, and finally sails 6km due West.

What is the distance travelled?

What is the net displacement?

