This print-out should have 12 questions. Multiple-choice questions may continue on the next column or page – find all choices before answering.

Average Speed on a Trip
001 (part 1 of 2) 10.0 points

A person travels by car from one city to another. She drives for 26 min at 69.4 km/h, 9.7 min at 87 km/h, 44.8 min at 47.5 km/h, and spends 19.4 min along the way eating lunch and buying gas.

Determine the distance between the cities along this route.

Answer in km.

002 (part 2 of 2) 10.0 points

Determine the average speed for the trip.

Answer in km/h.

Holt SF 03Rev 60
003 10.0 points

The eye of a hurricane passes over Grand Bahama Island. It is moving in a direction 52.3° north of west with a speed of 41.8 km/h. Exactly 3.00 hours later, the course of the hurricane shifts due north, and its speed slows to 25.2 km/h, as shown.

How far from Grand Bahama is the hurricane 5.25 h after it passes over the island?

Correct answer: 173.757 km.

Serway CP 04 07
004 10.0 points

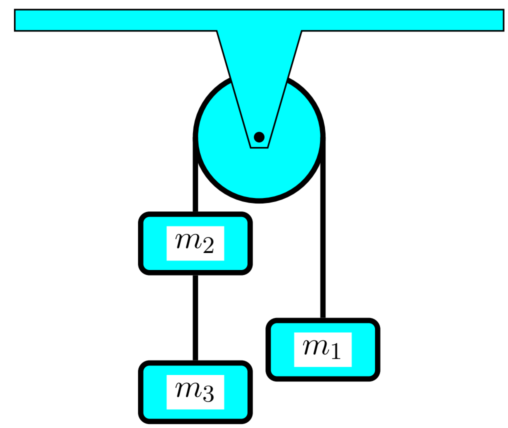
Then air exerts a forward force of 11 N on the propeller of a 0.29 kg model airplane.

If the plane accelerates forward at 2 m/s^2, what is the magnitude of the resistive force exerted by the air on the airplane?

Correct answer: 10.42 N.

Serway CP 04 62
005 (part 1 of 3) 10.0 points

Three masses are connected by light strings as shown in the figure.



The string connecting the m_1 and the m_2 passes over a light frictionless pulley.

Given $m_1 = 2.98$ kg, $m_2 = 3.69$ kg, $m_3 = 1.27$ kg, and $g = 9.8$ m/s^2. The acceleration of gravity is 9.8 m/s^2 .

Find the downward acceleration of m_2 mass.

Correct answer: 2.44383 m/s^2.

006 (part 2 of 3) 10.0 points

Find the tension in the string connecting the m_1 and the m_2 masses.

Correct answer: 36.4866 N.

007 (part 3 of 3) 10.0 points

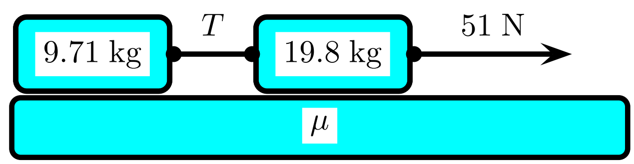
Find the tension in the string connecting the m_2 and the m_3 masses.

Correct answer: 9.34234 N.

Pulling Two Blocks 03
008 (part 1 of 4) 10.0 points

Two blocks on a frictionless horizontal surface are connected by a light string.

The acceleration of gravity is 9.8 m/s^2 .



Find the acceleration of the system.

Correct answer: 1.72823 m/s^2.

009 (part 2 of 4) 10.0 points

What is the tension in the string between the blocks?

Correct answer: 16.7811 N.

---

010 (part 3 of 4) 10.0 points

If the surface were frictional, and the coefficient of kinetic friction between each block and the surface is 0.117, what would be the new acceleration?

Correct answer: 0.581628 m/s^2.

---

011 (part 4 of 4) 10.0 points

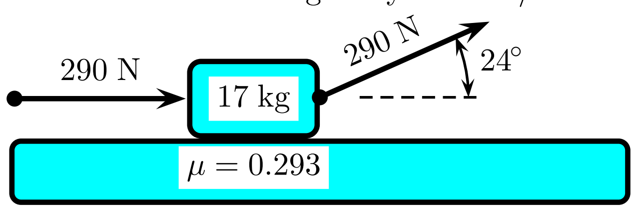
What would be the new tension in the string between the blocks?

Correct answer: 16.7811 N.

Forces Accelerating a Block
012 10.0 points

The magnitude of each force is 290 N, the force on the right is applied at an angle 24° and the mass of the block is 17 kg. The coefficient of friction is 0.293.

The acceleration of gravity is 9.8 m/s^2 .



What is the magnitude of the resulting acceleration?

Correct answer: 31.8044 m/s^2.