

This print-out should have 7 questions. Multiple-choice questions may continue on the next column or page – find all choices before answering.

Tipler PSE5 06 39

001 (part 1 of 2) 10.0 points

A 10 kg object is given a displacement

$$\Delta\vec{s} = (5 \text{ m})\hat{i} + (2 \text{ m})\hat{j} + (-6 \text{ m})\hat{k}$$

along a straight line. During the displacement, a constant force of

$$\vec{F} = (7 \text{ N})\hat{i} + (-5 \text{ N})\hat{j} + (11 \text{ N})\hat{k}$$

acts on the object.

Find the work done by \vec{F} for this displacement.

Correct answer: -41 J .

002 (part 2 of 2) 10.0 points

Find the component of \vec{F} in the direction of this displacement.

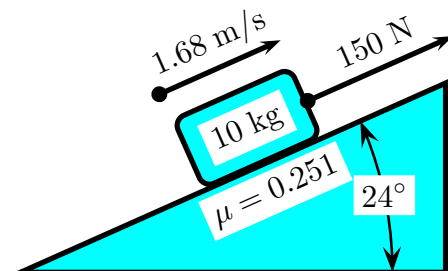
Correct answer: -5.08542 N .

Crate on an Incline 01

003 (part 1 of 2) 10.0 points

A crate is pulled by a force (parallel to the incline) up a rough incline. The crate has an initial speed shown in the figure below. The crate is pulled a distance of 8.61 m on the incline by a 150 N force.

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



a) What is the change in kinetic energy of the crate?

Correct answer: 754.825 J .

004 (part 2 of 2) 10.0 points

b) What is the speed of the crate after it is pulled the 8.61 m?

Correct answer: 12.4011 m/s .

Holt SF 05Rev 38

005 10.0 points

A person doing a chin-up weighs 624.6 N , disregarding the weight of the arms. During the first 23.4 cm of the lift, each arm exerts an upward force of 447 N on the torso.

The acceleration of gravity is 9.81 m/s^2 .

If the upward movement starts from rest, what is the person's speed at this point?

Correct answer: 1.4072 m/s .

Sliding a Box 0204

006 (part 1 of 2) 10.0 points

A 35.5 kg box initially at rest is pushed 4.06 m along a rough, horizontal floor with a constant applied horizontal force of 144.623 N .

If the coefficient of friction between box and floor is 0.37 , find the work done by the friction. The acceleration of gravity is 9.8 m/s^2 .

Correct answer: -522.615 J .

007 (part 2 of 2) 10.0 points

Find the the final speed of the box.

Correct answer: 1.90705 m/s .