

This print-out should have 11 questions. Multiple-choice questions may continue on the next column or page – find all choices before answering.

Serway CP 04 11

001 (part 1 of 3) 10.0 points

A boat moves through the water with two forces acting on it. One is a 2346 N forward push by the motor on the propeller, and the other is an 2118 N resistive force due to the water around the bow.

What is the acceleration of the 1293 kg boat?

Correct answer: 0.176334 m/s².

002 (part 2 of 3) 10.0 points

If it starts from rest, how far will it move in 13.7 s?

Correct answer: 16.5481 m.

003 (part 3 of 3) 10.0 points

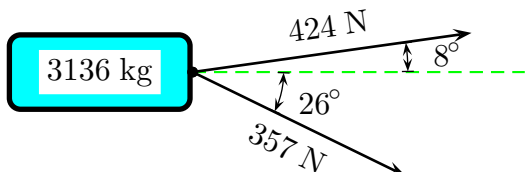
What will its velocity be at the end of this time interval?

Correct answer: 2.41578 m/s.

Serway CP 04 12

004 (part 1 of 3) 10.0 points

Two forces, 424 N at 8° and 357 N at 26° are applied to a car in an effort to accelerate it.



What is the magnitude of the resultant of these two forces?

Correct answer: 747.131 N.

005 (part 2 of 3) 10.0 points

Find the direction of the resultant force (in relation to forward, with counterclockwise considered positive).

Answer in degrees from the positive x -axis, with counter-clockwise positive, within the

limits of -180° to 180° .

Correct answer: -7.4976° .

006 (part 3 of 3) 10.0 points

If the car has a mass of 3136 kg, what magnitude of acceleration does it have?

Ignore friction.

Correct answer: 0.238243 m/s².

Tipler PSE5 04 37

007 (part 1 of 3) 10.0 points

A 3.2 kg object is subjected to two forces, $\vec{F}_1 = (2.8 \text{ N}) \hat{i} + (-3.9 \text{ N}) \hat{j}$ and $\vec{F}_2 = (4 \text{ N}) \hat{i} + (-10 \text{ N}) \hat{j}$. The object is at rest at the origin at time $t = 0$.

What is the magnitude of the object's acceleration?

Correct answer: 4.83568 m/s².

008 (part 2 of 3) 10.0 points

What is the magnitude of the velocity at $t = 3 \text{ s}$?

Correct answer: 14.507 m/s.

009 (part 3 of 3) 10.0 points

What is the magnitude of the object's position at $t = 3 \text{ s}$?

Correct answer: 21.7606 m.

Suspended in an Elevator 02

010 (part 1 of 2) 10.0 points

A 5 kg object is suspended by a string from the ceiling of an elevator.

The acceleration of gravity is 9.8 m/s².

Determine the tension in the string if it is accelerating upward at a rate of 3.4 m/s².

Correct answer: 66 N.

011 (part 2 of 2) 10.0 points

Determine the tension in the string if it is accelerating downward at a rate of 3.4 m/s².

Correct answer: 32 N.