

Quiz 3**Due: 11:59pm on Tuesday, November 4, 2014**You will receive no credit for items you complete after the assignment is due. [Grading Policy](#)

Conceptual Question 5.02

Part A

An object is moving to the right, and experiencing a net force that is directed to the right. The magnitude of the force is decreasing with time. The speed of the object is

ANSWER:

- ☐ constant in time.
- ☐ decreasing.
- ☒ increasing.

Correct

Conceptual Question 5.06

Part A

You are standing in a moving bus, facing forward, and you suddenly fall forward as the bus comes to an immediate stop. The force acting on you that causes you to fall forward is

ANSWER:

- ☐ the force due to kinetic friction between you and the floor of the bus.
- ☐ the normal force due to your contact with the floor of the bus.
- ☐ the force of gravity.
- ☒ No forces were acting on you to cause you to fall.

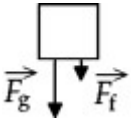
Correct

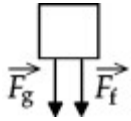
Conceptual Question 5.08

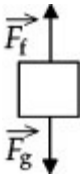
Part A

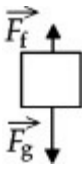
Which one of the following free-body diagrams best represents the free-body diagram, with correct relative force magnitudes, of a person in an elevator that is traveling upward but is gradually slowing down at a rate of 9 m/s^2 ? \vec{F}_f is the force of the floor on the person and \vec{F}_g is the force of gravity on the person.

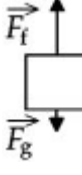
ANSWER:

☐ 

☐ 

☐ 

☒ 

☐ 

Correct

Conceptual Question 6.01

Part A

A box of mass m is pulled with a constant acceleration a along a horizontal frictionless floor by a wire that makes an angle of 15° above the horizontal. If T is the tension in this wire, then

ANSWER:

- ☐ $T = ma.$
- ☐ $T < ma.$
- ☒ $T > ma.$

Correct

Conceptual Question 6.03

Part A

A fish weighing 16 N is weighed using two spring scales, each of negligible weight, as shown in the figure. What will be the readings of the scales?



ANSWER:

- ☐ Each scale will read 8 N.
- ☐ The scales will have different readings, but the sum of the two readings will be 16 N.
- ☒ Each scale will read 16 N.
- ☐ The bottom scale will read 16 N, and the top scale will read zero.
- ☐ The top scale will read 16 N, and the bottom scale will read zero.

Correct

Conceptual Question 6.05

Part A

A box slides down a frictionless plane inclined at an angle θ , above the horizontal. The gravitational force on the box is directed

ANSWER:

- ☐ parallel to the plane in the same direction as the movement of the box.
- ☐ parallel to the plane in the opposite direction as the movement of the box.
- ☐ at an angle θ , below the inclined plane.
- ☒ vertically.
- ☐ perpendicular to the plane.

Correct

Conceptual Question 6.07

Part A

When a parachutist jumps from an airplane, he eventually reaches a constant speed, called the terminal speed. Once he has reached terminal speed

ANSWER:

- ☐ the force of air drag on him is equal to g .
- ☐ his speed is equal to g .
- ☐ his acceleration is equal to g .
- ☒ the force of air drag on him is equal to his weight.
- ☐ the force of air drag on him is equal to zero.

Correct

Problem 6.06

Part A

A 10,000-kg rocket blasts off from earth with a uniform upward acceleration of 2.00 m/s^2 and feels no air resistance. The upward thrust force its engines must provide during this acceleration is closest to

ANSWER:

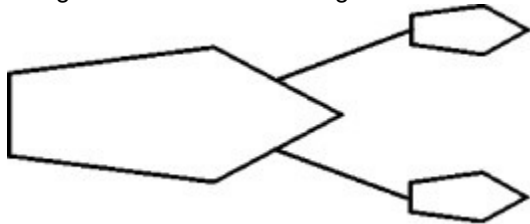
- ☒ 118,000 N.
- ☐ 980,000 N.
- ☐ 20,000 N.
- ☐ 78,000 N.

Correct

Problem 6.35

Part A

A ship is being pulled through a harbor at constant velocity by two tugboats as shown in the figure. The lines attached to the two tugboats have the same tension of 200,000 N. Each line makes an angle of 28.0° with the direction the ship is being towed. What is the magnitude of the drag force due to the water on the ship?



ANSWER:

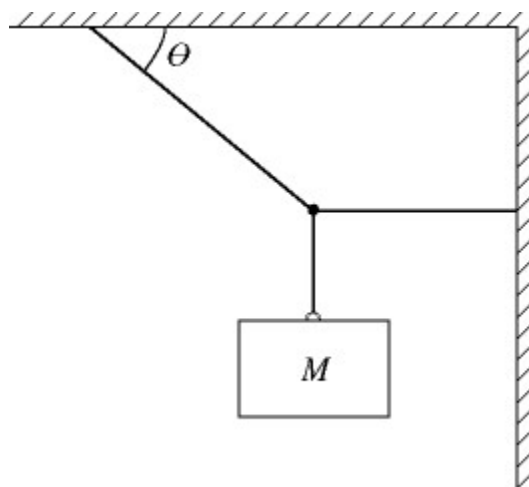
- ☐ $177 \times 10^5 \text{ N}$
- ☐ $93.9 \times 10^4 \text{ N}$
- ☐ $1.88 \times 10^5 \text{ N}$
- ☒ $3.53 \times 10^5 \text{ N}$
- ☐ zero

Correct

Problem 6.32

Part A

In the figure, a block of mass M hangs at rest. The rope that is fastened to the wall is horizontal and has a tension of 43 N. The rope that is fastened to the ceiling has a tension of 62 N, and makes an angle θ with the ceiling. What is the angle θ ?



ANSWER:

- ☐ 37°
- ☐ 55°
- ☒ 46°
- ☐ 28°
- ☐ 65°

Correct

Score Summary:

Your score on this assignment is 92.5%.

You received 9.25 out of a possible total of 10 points.