

Unit 2 Quiz

Due No due date

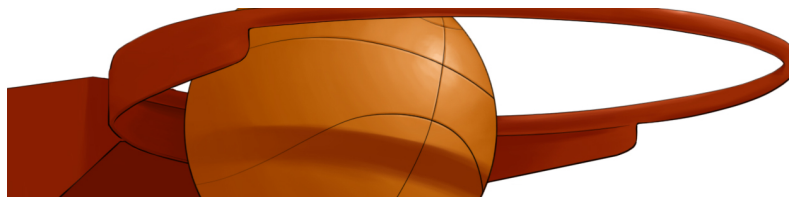
Points 20

Questions 20

Time limit None

Allowed attempts 2

Instructions



Before you begin working on this assignment, please read this information:

- Unit quizzes **do** count toward your course grade.
- Double-check your work before submitting the assignment.
- You can save your work and continue later, if you need to.
- The assignment is **open book**—you can refer back to the lesson material to find answers.

Take the quiz again

Attempt history

	Attempt	Time	Score
LATEST	Attempt 1	27 minutes	19 out of 20

⚠ Correct answers are hidden.

Score for this attempt: **19** out of 20

Submitted 21 Mar 2019 at 11:05

This attempt took 27 minutes.

Question 1

1 / 1 pts

In what units do we measure force?

☐ meters per second

☐ meters

☐ kelvins

☒ newtons

Question 2

1 / 1 pts

A particular box has 100 N of force pulling to the left and 100 N of friction pushing to the right. How will the box move?

☐ It will slow down.

☐ It will speed up.

☒ It will have constant speed.

Question 3

1 / 1 pts

What do we call *a resistance to change in motion*?

☐ Galileo's law

☐ force

☐ SI

☐ newton

☒ inertia

For the following three questions, choose whether the force is a contact force or a long-range force.

Question 4**1 / 1 pts**

A student pulls on a rope in a tug of war.

- ☒ contact
- ☐ long range

Question 5**1 / 1 pts**

The driver of a car slams on the brakes and skids to a stop.

- ☒ contact
- ☐ long range

Question 6**1 / 1 pts**

A rock is pulled towards Earth by gravity.

- ☐ contact

- ☒ long range

Incorrect

Question 7

0 / 1 pts

A box is at rest on a table. Which of the following best describes *all* of the forces acting on the box?

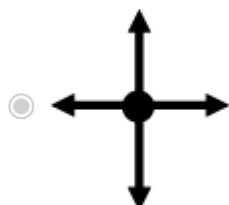
- ☐ gravity and normal only
- ☐ gravity, normal, and tension only
- ☐ gravity only
- ☒ gravity and tension only

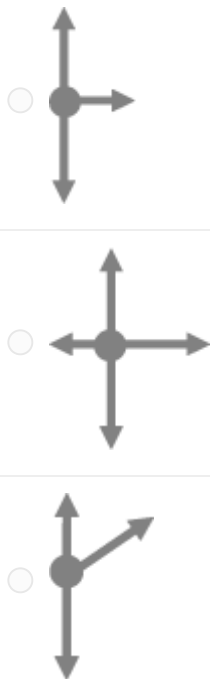
While it is true that gravity is acting on the box, there is not any tension force present. Review the material from lessons 1 and 2. You can also get more help with similar force problems in the unit 2 folder in the virtual practice lab. Check out problem 2.

Question 8

1 / 1 pts

Which of the following free-body diagrams represents an object with constant velocity? (Note that the size of the arrow reflects the size of the force.)



**Question 9****1 / 1 pts****How much does a 1500 kg car weigh on Earth?**

- ☐ 1500 N
- ☐ 150,000 N
- ☐ 150 N
- ☒ 15,000 N

For the following three questions, find the x and y components of each force.

Question 10**1 / 1 pts****A 5,000 N force at a 24° angle**

- ☒ $F_x = 4,568 \text{ N}$, $F_y = 2,034 \text{ N}$
- ☐ $F_x = 2,226 \text{ N}$, $F_y = 2,034 \text{ N}$
- ☐ $F_x = 2,034 \text{ N}$, $F_y = 4,568 \text{ N}$
- ☐ $F_x = 4,568 \text{ N}$, $F_y = 2,226 \text{ N}$

Question 11**1 / 1 pts****A 42 N force at a 30° angle**

- ☐ $F_x = 21 \text{ N}$, $F_y = 21 \text{ N}$
- ☐ $F_x = 21 \text{ N}$, $F_y = 36.4 \text{ N}$
- ☒ $F_x = 36.4 \text{ N}$, $F_y = 21 \text{ N}$
- ☐ $F_x = 42 \text{ N}$, $F_y = 0 \text{ N}$

Question 12**1 / 1 pts****A 155 N force at an 18° angle**

- ☐ $F_x = 50.4 \text{ N}$, $F_y = 48 \text{ N}$

- ☒ $F_x = 147 \text{ N}$, $F_y = 48 \text{ N}$
- ☐ $F_x = 48 \text{ N}$, $F_y = 147 \text{ N}$
- ☐ $F_x = 147 \text{ N}$, $F_y = 50.4 \text{ N}$

Question 13**1 / 1 pts**

A child pulls on a 25 kg wagon with a horizontal force of 50 N. As a result, the wagon moves with constant velocity. How much friction must there be on the wagon?

- ☐ 75 N
- ☐ 25 N
- ☒ 50 N
- ☐ 250 N

Question 14**1 / 1 pts**

A child pulls on a 25 kg wagon with a force of 50 N at a 20° angle above the horizontal. As a result, the wagon moves with constant velocity. How much friction must there be on the wagon?

- ☐ 23.5 N
- ☐ 200 N
- ☐ 17.1 N

☒ 47 N

Use the following scenario to answer the next three questions.

Students perform an experiment. In trial 1, a 50 N horizontal force acts on a 250 kg boat in the water. (Ignore any friction in the water.) Something is changed in each additional trial. State whether the acceleration will be greater than, less than, or equal to trial 1.

Question 15

1 / 1 pts

In trial 3, the mass is put back at 250 kg, but the force is changed to 25 N. How does the acceleration in trial 3 compare to trial 1?

- ☐ acceleration in trial 3 = acceleration in trial 1
- ☐ acceleration in trial 3 > acceleration in trial 1
- ☒ acceleration in trial 3 < acceleration in trial 1

Question 16

1 / 1 pts

In trial 4, the mass is changed to 125 kg and the force is changed to 25 N. How does the acceleration in trial 4 compare to trial 1?

- ☐ acceleration in trial 4 > acceleration in trial 1
- ☒ acceleration in trial 4 = acceleration in trial 1

- ☐ acceleration in trial 4 < acceleration in trial 1

Question 17**1 / 1 pts**

In trial 2, the mass of the boat was changed to 125 kg, and the force remains the same (50 N). How does the acceleration in trial 2 compare to trial 1?

- ☐ acceleration in trial 2 = acceleration in trial 1
- ☒ acceleration in trial 2 > acceleration in trial 1
- ☐ acceleration in trial 2 < acceleration in trial 1

Question 18**1 / 1 pts**

A 10 kg box is at rest on the floor. You push it with 30 N of force to the right. As a result, it accelerates at 1 m/s^2 . How much friction is present?

- ☐ 10 N
- ☒ 20 N
- ☐ 3 N
- ☐ 100 N
- ☐ 30 N

Question 19**1 / 1 pts**

A basketball exerts a force against the backboard. What is the action-reaction pair to this force?

- ☐ There is no action-reaction pair to this force.
- ☐ the tension force between the basketball and the backboard
- ☒ the contact force of the backboard pushing on the basketball
- ☐ the gravitational force of the earth on the basketball
- ☐ the force of air resistance pushing against the basketball

Question 20**1 / 1 pts**

A student pushes on a 1,500 kg car with a 150 N horizontal force. There is a frictional force of 100 N. What is the action-reaction pair to the 150 N force that the student exerts on the car?

- ☐ the force of Earth's gravity on the car
- ☐ the inertia of the car
- ☐ the force of friction
- ☐ the normal force
- ☒ the force of the car pushing back on the student

Quiz score: 19 out of 20

