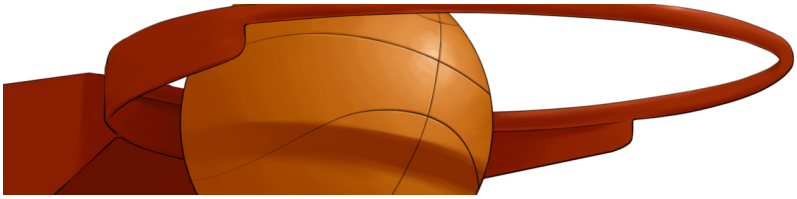
Unit 3 Quiz

Due No due date **Points** 19 **Questions** 19 **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.

Attempt history

	Attempt	Time	Score
KEPT	Attempt 2	8 minutes	17 out of 19
LATEST	Attempt 2	8 minutes	17 out of 19
	Attempt 1	53 minutes	16 out of 19

ⓘ Correct answers are hidden.

Score for this attempt: **17** out of 19
Submitted 28 Mar 2019 at 11:17
This attempt took 8 minutes.

Question 1 1 / 1 pts

A 40 N force is applied vertically to lift an object 2 m. How much work is done by this force?

- 38 N•m
- 20 N•m
- 80 N•m
- 60 N•m
- 42 N•m

Question 2

1 / 1 pts

Which statement is completely accurate regarding the equation for calculating work done on an object?

- The basic equation for calculating work can be used if the force is constant and in the same direction as the displacement.
- The basic equation for calculating work can be used as long as the force is constant.
- The basic equation for calculating work can be used only for determining the displacement of a spring force.
- The basic equation for calculating work can be used in all cases.

Question 3

1 / 1 pts

A spring stretches 1.5 meters when a force of 60 N is applied to it. What is the spring constant?

- 60 N/m
- 45 N/m
- 40 N/m
- 30 N/m
- 90 N/m

Question 4

1 / 1 pts

A 20 N constant horizontal force is applied to a 5 kg box. As a result, the box moves 10 m to the right. How much work is done by this force?

- 100 N•m
- 25 N•m
- 30 N•m
- 2 N•m
- 200 N•m

Question 5

1 / 1 pts

A spring has a spring constant of 30 N/m. How much force will the spring exert if it is stretched 0.5 m?

- 7.5 N
- 0.5 N
- 15 N
- 60 N
- 30 N

For the following five questions, identify the source of energy and the final energy in each energy transformation.

Question 6

1 / 1 pts

a flashlight

- source: electrical → final: chemical
- source: light → final: chemical
- source: chemical → final: light
- source: chemical → final: kinetic

source: heat → final: light

Incorrect

Question 7

0 / 1 pts

driving a car

source: chemical → final: kinetic

source: chemical → final: electrical

It is true that cars get their energy from chemical energy in gasoline. They also do produce electricity. However, electricity is not the intended useful energy when you drive a car. You want the car to move. Remember that it is the useful energy that we want to identify. You may want to go back and review the material from lesson 2.

source: electrical → final: heat

source: nuclear → final: kinetic

source: chemical → final: heat

Question 8

1 / 1 pts

a candle

source: chemical → final: light

source: chemical → final: electric

source: light → final: kinetic

- source: chemical → final: kinetic
- source: light → final: chemical

Question 9

1 / 1 pts

a solar-powered calculator

- source: light → final: electrical
- source: electrical → final: light
- source: light → final: kinetic
- source: chemical → final: light
- source: chemical → final: electrical

Question 10

1 / 1 pts

a campfire

- source: chemical → final: heat
- source: chemical → final: kinetic
- source: chemical → final: electric
- source: heat → final: kinetic
- source: heat → final: chemical

Question 11

1 / 1 pts

A 75 kg student stands at the top of a 20 m tall building. How much gravitational potential energy does this student possess?

- 1500 J
- 150 J
- 15,000 J
- 95 J
- 3.75 J

Question 12

1 / 1 pts

A 2000 kg truck is moving at 5 m/s at the top of a 10 m hill. How much total mechanical energy does the truck have?

- 125,000 J
- 200,000 J
- 225,000 J
- 175,000 J
- 25,000 J

Question 13

1 / 1 pts

Which type of energy is involved in stretching or compressing a spring?

- KE
- EPE
- TME
- GPE

Question 14

1 / 1 pts

A 0.050 kg bullet travels at 300 m/s. How much kinetic energy does it have?

- 2250 J
- 15 J
- 4500 J
- 6000 J
- 7.5 J

Incorrect

Question 15

0 / 1 pts

A spring with a spring constant of 45 N/m is stretched 3 m. How much elastic potential energy is now stored in the spring?

- 135 J

- 15 J

It appears that you divided the spring constant by the displacement when you tried to calculate the elastic potential energy. This is not how you find the elastic potential energy. Go back and review the equation for calculating elastic potential energy (EPE) in lesson 3. Check out problem 8.

- 202.5 J
- 405 J
- 67.5 J

Question 16

1 / 1 pts

A 100 kg cart is moving at 8 m/s across a horizontal surface. What is the amount of kinetic energy?

- 6400 N/m
- 3200 N/m
- 1600 N/m
- 800 N/m

Question 17

1 / 1 pts

A professional baseball pitcher can throw a baseball (mass = 0.14 kg) at a speed of 100 miles per hour (about 45 m/s). If he throws it straight up, how high will it go? (Assume no energy is dissipated, but remember to include the force of gravity.)

- 55 m
- 101 m
- 45 m
- 14 m

Question 18

1 / 1 pts

A 75 kg person jumps from a height of 175 m and lands with a speed of 8 m/s. How much energy was dissipated?

- 10,725 J
- 64,425 J
- 128,850 J
- 102,600 J

Question 19

1 / 1 pts

A 2 kg ball sits at the top of a 3.2 m hill. How fast does it move at the bottom of the hill if there is no dissipated energy?

- 6.4 m/s
- 10 m/s
- 20 m/s

- 2 m/s
- 8 m/s

Quiz score: **17** out of 19