

Assessment

Work and Energy**Section Quiz: Work**

Write the letter of the correct answer in the space provided.

- _____ 1. Which of the following sentences uses *work* in the scientific sense.
- Stan goes to work on the bus.
 - Anne did work on the project for 5 hours.
 - Joseph found that holding the banner in place was hard work.
 - An engine does work on a car when the car is moving.
- _____ 2. Work is done on an object
- whenever a force acts on the object.
 - whenever a force is perpendicular to the displacement of the object.
 - whenever a force causes a displacement of the object.
 - whenever a net force acts on the object.
- _____ 3. In which of the following cases is *no* work done?
- A weightlifter lifts a barbell.
 - A weightlifter holds a barbell overhead.
 - A weightlifter slowly lowers a barbell.
 - A weightlifter drops a barbell and the barbell falls to the ground.
- _____ 4. If the sign of work is negative,
- the force is in the same direction as the displacement.
 - the force is perpendicular to the displacement.
 - the component of the force that does work is in the direction opposite the displacement.
 - the component of the force that does work is perpendicular to the displacement.
- _____ 5. A painter lifts a bucket of paint, carries it 5 m horizontally, then sets it back down. Which of the following is true?
- The force of gravity does negative work when the worker lifts the bucket.
 - The painter does positive work on the bucket when carrying it horizontally at constant speed.
 - The painter does positive work on the bucket when setting it down.
 - No net work is done on the bucket.
- _____ 6. Which equation is used to calculate the work done on an object by a force at an angle, θ , to the displacement?
- $W = Fd$
 - $W = Fd\cos\theta$
 - $W = Fd\sin\theta$
 - $W = mgsin\theta$

Work and Energy *continued*

- _____ 7. A joule is equivalent to a
- a. N.
 - b. N•m.
 - c. N/m.
 - d. $\text{kg}\cdot\text{m}/\text{s}^2$.
- _____ 8. A parachutist falls at a constant speed for 200 m. Which of the following is true?
- a. The force of gravity is the only force doing work on the parachutist.
 - b. Air resistance is the only force doing work on the parachutist.
 - c. No forces are doing work on the parachutist.
 - d. No net work is done on the parachutist.
9. A construction worker lifts a heavy cinder block 1 m off the ground, holds it in place for 3 s, then sets it back down in the same place. Describe the forces doing work on the block and the net work on the block throughout this action.

10. A child pulls a wagon 3.0 m using a force of 55 N at an angle 35° above horizontal. The force of friction on the wagon is 12 N. Calculate the net work done on the wagon.