

PHY 303K Discussion Session - Week 6

1) Which of the following statements are true about work? Include all that apply.

- a) Work is a form of energy.
- b) A Watt is the standard metric unit of work.
- c) Units of work would be equivalent to a Newton times a meter ($N \cdot m$).
- d) $kg \cdot m^2 / s^2$ would be a unit of work.
- e) Work is time-dependent; it depends on how fast a force displaces an object.
- f) Superman applies a force on a truck to prevent it from moving down a hill. This is an example of work being done.
- g) An upward force is applied to a bucket as it is carried 20 m across the yard. This is an example of work being done.
- h) A force is applied by a chain to a roller coaster car to carry it up the hill of the first drop of the Shockwave ride. This is an example of work being done.
- i) The force of friction acts upon a softball player as she makes a headfirst dive into third base. This is an example of work being done.
- j) An eraser is tied to a string; a person holds the string and applies a tension force as the eraser is moved in a circle at constant speed. This is an example of work being done.
- k) A force acts upon an object to push the object along a surface at constant speed. By itself, this force must NOT be doing any work upon the object.
- l) A force acts upon an object at a 90-degree angle to the direction that it is moving. This force is doing negative work upon the object.
- m) An individual force does NOT do positive work upon an object if the object is moving at constant speed.
- n) An object is moving to the right. A force acts leftward upon it. This force is doing negative work.
- o) A non-conservative force is doing work on an object; it is the only force doing work. Therefore, the object will either gain or lose mechanical energy.