

Name: _____ Block: _____

Creating Work Problems

Directions

All work problems involve an applied force and a displacement. The formula is:

$$W = \vec{F} \cdot \vec{d} = Fd \cos \theta$$

If the force and the displacement are in the same direction, then the cosine of the angle is 1 and the formula reduces to:

$$W = Fd$$

To make up a work problem, you need to make up a story that involves a force being applied over some distance, with some angle between the two. The force can be given in the problem, or it may be necessary to calculate the force separately. (Often the work is done against gravity, which means the force is the mass times 9.8.)

Assignment

1. Make up and write out a one-step work problem in which you give two of the three variables (force, distance, and work), and ask for the third one.
2. Make up and write out a two-step work problem that requires the student to calculate the force first (*e.g.*, friction, gravity, etc.), and then multiply by distance to calculate the work.
3. Write out solutions for both problems on a separate sheet of paper.