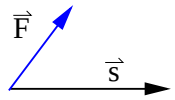
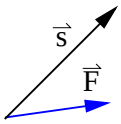
1. Force $\vec{F}$ is one of the forces acting on an object during a displacement $\vec{\Delta r} = \vec{s}$. Give the sign of the work done by $\vec{F}$ during the displacement $\vec{s}$. Zero is a possibility.

a.



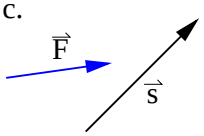
sign = _____

b.



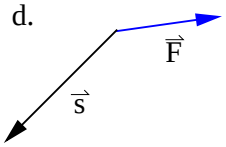
sign = _____

c.



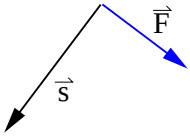
sign = _____

d.



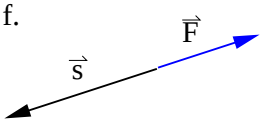
sign = _____

e.



sign = _____

f.



sign = _____

2. For each situation below, draw an extended FBD showing all forces acting on the object. Alongside your FBD, draw and label the displacement vector $\vec{\Delta r}$, then make a table showing the sign (+,−, or 0) of (i) the work done by each force in your FBD, (ii) the net work, and (iii) the object's change in kinetic energy.

a. A crate (C) riding on the floor (F) of an ascending elevator comes to rest as the elevator reaches the top of its journey.

b. A box (B) slides down a frictionless ramp (R).

3. The box in 2(b) weighs 8.0 N, and the ramp makes a 20° angle with the horizontal. If the box slides 1.2 m along the incline, starting with a kinetic energy of 0.06 J, find the net work done on the box during the slide, and the kinetic energy of the box at the bottom. How would you find the starting or ending speed of the box?