$400J + E_{THERM} = 1600J$

$E_{THERM} = 1200J$

	BEFORE	AFTER
b) 0 J	$K = \frac{1}{2}(2kg)(40m/s)^2$	$K = 0$
c) 1600 J	$= 1600\,J$	$U_g = (2kg)(10m/s^2)(20m)$
d) 2400 J	$U_g = 0$ (by choice)	$= 400\,J$
(e) 1200 J	$E_{THERM} = 0$	E_{THERM} = ENERGY LOST TO FRICTION

9) A spring of elastic constant 50 N/m is compressed from its relaxed position. Once the spring is released, it launches a 2 kg rock that moves along a rough horizontal surface until it comes to a stop. If 100 J have been lost to friction, find the inial compression of the spring.

$25x^2 = 100$

$x^2 = 4$

$x = 2m$

	BEFORE	AFTER
a) 0 m	$K = 0$	$K = 0$
b) 1 m	$U_e = \frac{1}{2}(50\frac{N}{m})x^2$	$U_e = 0$
(c) 2 m	$U_g = 0$	$U_g = 0$
d) 2.5 m	$E_{THERM} = 0$	$E_{THERM} = 100J$
e) 1.75 m		

10) A 100 kg meteorite impacts on the surface of the moon. Upon impact, how does the force that the meteorite exerts on the moon's surface compare to the force exerted by the moon on the meteorite?

a) The force exerted by the moon on the meteorite is larger than the force exerted by the meteorite on the moon.

b) The force exerted by the moon on the meteorite is smaller than the force exerted by the meteorite on the moon.

(c) The force exerted by the moon on the meteorite is the same the force exerted by the meteorite on the moon.