Quiz 4  

1) A mass of 20 kg is placed on a scale. In newton units, what does the scale read?
   a) zero   b) 2 N   c) 20 N   d) 200 N   e) 2000 N
   \[ F = mg = (20 \text{ kg})(10 \text{ N/kg}) = 200 \text{ N} \]

A mass, \( m \), hangs from each end of a string passing over a massless and frictionless pulley, as shown in the figure.

2) What string tension force, \( T \), acts on either mass?
   a) \( m \)   b) \( 2m \)   c) \( mg \)   d) \( 2mg \)   e) \( mg / 2 \)

Forces acting on EITHER mass must balance. The weight of either mass must be balanced by the string tension force.

Two masses, \( m \), with a springs attached are stacked on the floor as shown in the figure.

3) The bottom spring applies what force to the bottom mass?
   a) zero   b) \( m \)   c) \( 2m \)   d) \( mg \)   e) \( 2mg \)

4) For the same stack of two masses, what gravitational force acts on the lower mass?
   a) zero   b) \( m \)   c) \( 2m \)   d) \( mg \)   e) \( 2mg \)