

## Quiz 4

### Oct. 14, 2003

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

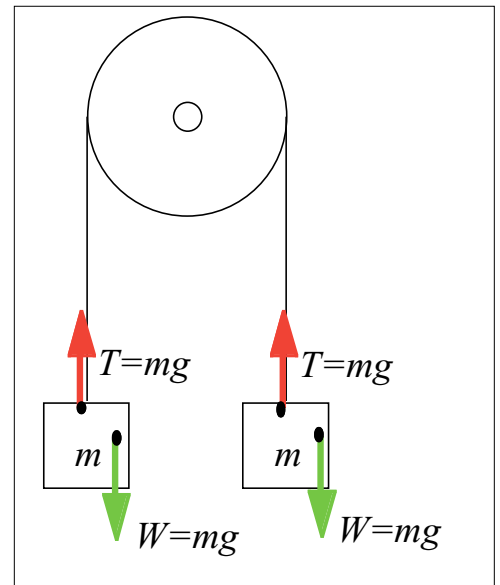
$$F = mg = (20 \text{ kg})(10 \text{ N/kg}) = \underline{200 \text{ N}}$$

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)  $2mg$

