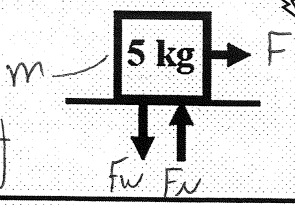
All sections marked with a ⚡ are considered essential concepts and must be completed to receive full credit on WS.

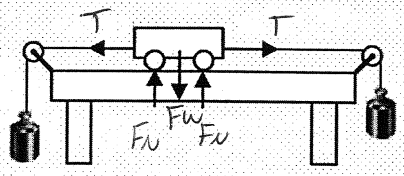
1. *F, T, F_w, F_f, or F_N?*

F_N Normal force	F_N A surface pushing up from below.
F_f Force of friction	All Any push or pull.
F_w Weight	F_f Resists change of motion.
F Applied force	F_f Increases with rough surfaces.
T Tension	F_w Always pulls downward.
T Exerted by a string or rope.	F_N Is always perpendicular to a surface.
F_w Caused by gravity.	
T Is equal throughout.	

2. A mass is pulled to the right while on a table.
   A. Label the forces.
   B. Calculate the object's weight.



$F_w = m \cdot g$
$5kg \cdot 10m/s^2 = 50N$



5. A. Label the forces on the above object.
   B. Which ones are y-direction forces? F_w, F_N
   C. Which ones are x-direction forces? T

3. Calculate the weight of a 7 kg object.

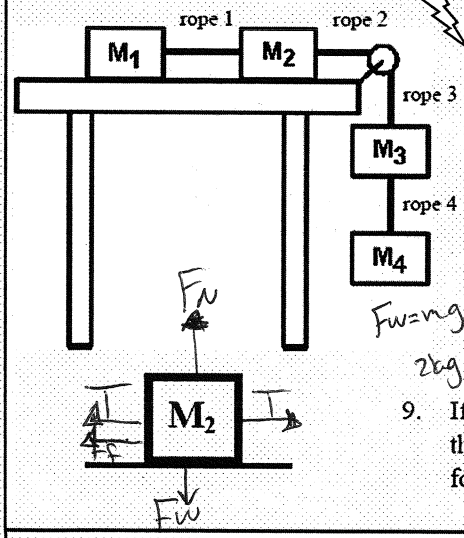
F_w
m 7kg
g $10m/s^2$

$F_w = 7kg \cdot 10m/s^2$
$F_w = 70N$

4. Calculate the mass of a 65 N object.

F_w 65N
m ?
g $10m/s^2$

$F_w = mg$
$m = \frac{F_w}{g} = \frac{65N}{10m/s^2} = 6.5kg$



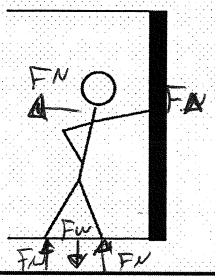
6. What force is acting on all four of the masses? F_w
7. What force is NOT acting on the hanging masses? F_N
8. If $M_1 = 2$ kg, what is F_{W1}?

$F_w = mg$
$2kg \cdot 10m/s^2 = 20N$

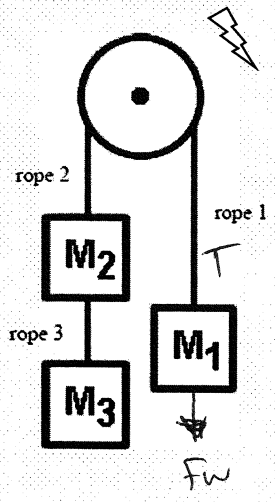
9. If there IS friction on the table, draw the forces acting on M_2.

10. Static friction, Kinetic friction, or Air friction?

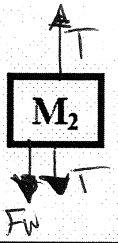
A.	Both	Depends on the roughness of the surface.
B.	S	Between tires and the road, normally.
C.	S	When an object is at rest.
D.	K	When an object slides.
E.	S	Gripping friction.
F.	Air	Increases with speed.
G.	K	When you slip on ice.
H.	All	Resists the motion of an object.
I.	Air	Keeps a falling object from speeding up forever.

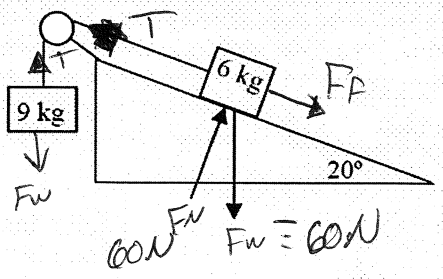


11. What kind of force is keeping the person from falling thru the wall? F_N
12. Draw all of the forces acting on the person.



13. What force cannot be acting on the objects? F_N
14. On the diagram at the left draw all of the forces acting on M_1.
15. Draw the force diagram for M_2, below.





16. Label the two shown forces acting on the 6 kg mass, giving actual numbers if you know them.
17. If the 9 kg object moves down and there IS friction on the ramp, label all of the other forces acting on the objects.