

PHYS 210 - General Physics I

- Base Groups
- Newton's Laws of Motion
- Rotation and forces

Pope and tablecloth



FORCES

Please Note:

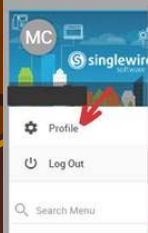
- Physics Study Tables moving from Wednesday to Thursday evening (7:30 pm in SCIC 114) for this week (only!)
- SPS – Orionid meteor shower watch tonight at 10 pm at MU Observatory (by tennis courts and skating rink)

Also, from the Director of University Safety:

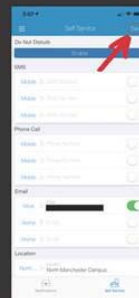
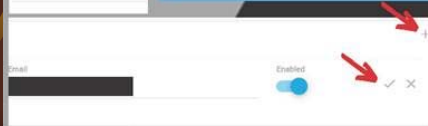
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Click the **checkmark** to the right of the box if you make any changes or updates.



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On the home screen, press the **Self-Service icon** in the lower right-hand corner. Enter the information for where you want alerts to go.

SMS - phone numbers that Spartan Alerts will text.

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Location - locations where you may be, such as the Fort Wayne or North Manchester campus.

Click **Save** in the upper right when you have finished.

2019 International Year of the Periodic Table

(in cupcakes!)

Presented by the
American Chemical
Society (ACS)



Science Seminar

hosted by
Natural and Health Sciences

October 21, 2019

Chemistry Department

4:00 – 5:00 PM

Flory Auditorium (SCIC 203)

EVERYONE is welcome!
ALL MAJORS, ALL YEARS
Snack Provided



Base Groups!

- BGDG: If you could have a superpower, what would it be and why?
- BGWS
- RO



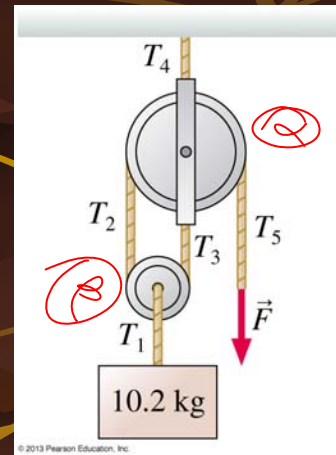
Newton's Laws of Motion

Know these by heart!

1. If $\vec{F}_{NET} = 0$, then $\vec{v} = \text{constant}$
 - ❖ Mass is a measure of inertia
2. $\vec{F}_{NET} = m\vec{a}$
 - ❖ SI unit of force is the Newton [N]
 - ❖ The net force is parallel to the acceleration!
3. $\vec{F}_{12} = -\vec{F}_{21}$

Example: P7.39

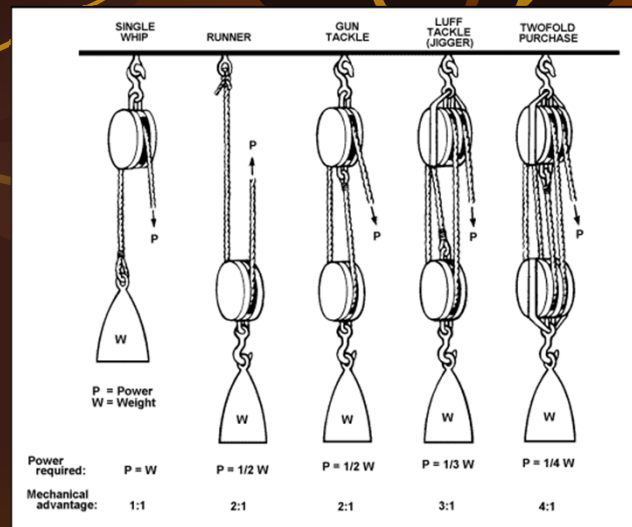
- The 10.2 kg block in the figure is held in place by a force applied to a rope passing over two massless, frictionless pulleys. Find the tensions T_1 through T_5 and the magnitude of the force F .



- Ideal Mechanical Advantage:

$$IMA = \frac{F_{\text{output}}}{F_{\text{input}}}$$

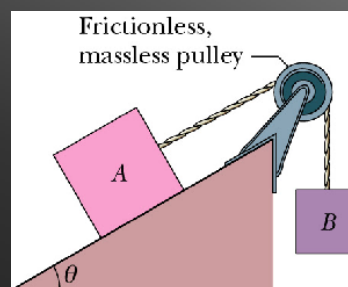
- Pulleys input force on free end of rope; output force is the load



EXAMPLE: Two blocks, m_A & m_B , are connected over a frictionless, massless pulley. The mass of block A is 10 kg and the coefficient of kinetic friction between block A and the incline is 0.20 . The angle of inclination is 30° . Block A slides down the incline at a constant acceleration of magnitude $a = 1.3\text{ m/s}^2$. Find the mass of block B.

KNOWNs:

- ▶ Massless pulley
- ▶ $m_A = 10\text{ kg}$
- ▶ $\theta = 30^\circ$
- ▶ $\mu_k = 0.20$
- ▶ Block A slides down @ const acceleration, $a = 1.3\text{ m/s}^2$.
- ▶ Find m_B



Science Seminar today!

**Chemistry Rocks! Celebrating
National Chemistry Week.**