

Wednesday, January 7/15  
Physics 122/121

## Task Sheets

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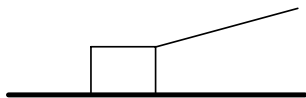
### Kepler's Lab - Shelby, Duncan

1. Quiz U2 - S2 -> Rewrite: Friday During IS
  2. Three Charges and Coulomb's Law
  3. Electric Fields - Diagrams  
- Strength/Intensity of Electric Fields
  4. Textbook: Page 646, #11-14  
Page 655, #20-24
  5. Electric Potential Energy
  6. Electric Potential Difference (Voltage)
  7. Electric Current
  8. Textbook: Page 696, #4-10
  9. Ohm's Law
  10. Textbook: Page 714, #21-24
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## Formative Assessment - Pull Problem

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A 25.0 kg block is pulled along a horizontal surface by a string. The string makes an angle of  $30^\circ$  to the horizontal and is pulled by a 100 N force. If the coefficient of friction between the surface and block is 0.23, what is the acceleration of the block?



$$F_x - F_f = ma$$

$$F \cos 30 - \mu N = ma$$

$$F \cos 30 - \mu(W - F_y) = ma$$

$$F \cos 30 - \mu(mg - F \sin 30) = ma$$

$$a = \frac{F \cos 30 - \mu(mg - F \sin 30)}{m}$$

$$a = \frac{100 \cos 30 - 0.23(25.0 \times 9.80 - 100 \sin 30)}{25.0}$$

$$a = 1.7 \text{ m/s}^2$$

$$N + F_y - W = 0$$

$$N = W - F_y$$

$$N \neq W$$

The acceleration of the block is  $1.7 \text{ m/s}^2$ , right.

Physics 122/121 - Final Exam

Unit 1

- > force problems
  - push/pull
  - suspended objects
  - **incline plane**
- > static torque
  - **horizontal (L2)**
  - **involving an angle (L1)**
- > relative velocity
- > collisions
  - 1 D
    - simple
    - elastic/inelastic
  - **2D**

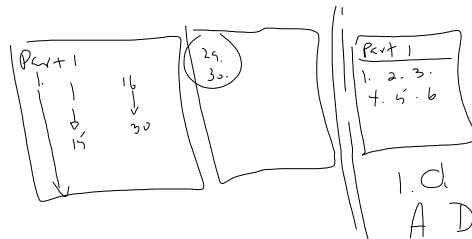
Unit 2

- > projectiles
  - horizontal
  - **fired at an angle**
    - no trig (L2)
    - trig (L1)
- > SHM
  - pendulum
  - **mass on a spring**
- > **Law of Universal Gravitation and planetary motion**
- > circular motion
  - **horizontal circular motion (L2)** unbanked curve
  - **vertical circular motion (L1)** banked curve

Unit 3

- > electrostatics
  - electrical charges
  - transfer of charge between identical objects
  - electric force - Coulomb's Law
    - 2 charges
    - **3 charges**
      - **in a line**
      - (at an angle)
  - electric fields
    - diagrams
    - electric field strength
  - electric potential energy
  - electric potential difference
- > electric current
  - conventional current/electron flow
  - circuit symbols
  - open/closed circuits
  - ammeters/voltmeters
  - resistance in a wire
  - **Ohm's Law**
  - circuits
    - series
    - parallel
    - **complex/combination**
    - **VIR chart**
  - (power)

multiple choice = 30  
problems = 11



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- a)  $W \leftarrow$
- b)  $W + F_y$
- c)  $W - F_y$
- d)  $-W + F_y$