**Harold’s Physics of Forces with Pully**

**“Cheat Sheet”**

23 April 2021

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| **Incline Plane with a Pully** |
| Physical Setup |  |
| Free Body Diagrams |  |  |
| **G**ivens |  |  |
| Observations |  |  |
| **U**nknowns |  |  |
| **E**quations |  |
|  |  |
|  |  |
| **S**olve1) Forces |  |  |
| 2) Tension |  |
| 3) Work-Energy |  |
| **S**ubstitute |  |
|  |
|  |
| **S**ubstitute |  |
|  |
| Box Your Answers |  |  |
| Check Your Answers | <https://amesweb.info/Physics/Inclined-Plane-Calculator.aspx>  |
| Analysis |  | **Possible sources of error:**1. The pully really does have friction.

[The pully friction pulls Work (-W) out of the system in the form of heat energy]1. The pully spins and has rotational energy.

[1. The string really does have mass.

[ 1. Accumulating string mass contributes to vertical . []
2. Gravity (**g**) varies by altitude and geo location. [9.8 vs. 9.81]
3. Measuring equipment margin of error.

[±0.0001]1. Human error in measurements. [±0.01]
2. Air resistance as the masses move.
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