Solving Tension Problems

Tension problems are solved by finding the force an object ACTUALLY feels that causes it to accelerate which is always less than the true force it feels usually due to the force of gravity.

There are five steps to following to solve tension problems. They are as follows:

1.) Solve for individual forces occurring on each object.

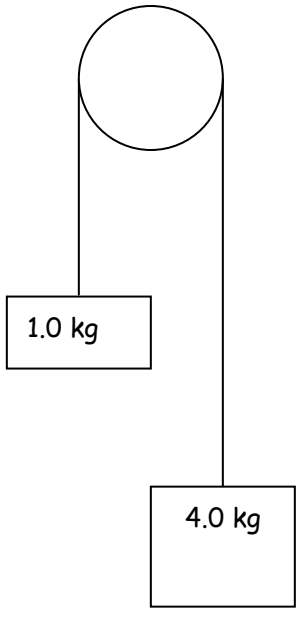
2.) Solve for the net force by subtracting the smaller force from the larger force.

3.) Solve for the acceleration of the ENTIRE SYSTEM using $\vec{F}_{net} = m\vec{a}$. **Hint** – use the total mass!

4.) Using the acceleration from above solve for the force the winning objects force that ACTUALLY causes it to accelerate at the above magnitude.

5.) Use the force on the winning object to solve for tension using $\vec{F}_{net} = w - T$

- Ex. – Solve for the tension in the rope of the diagram seen below.



Answer –