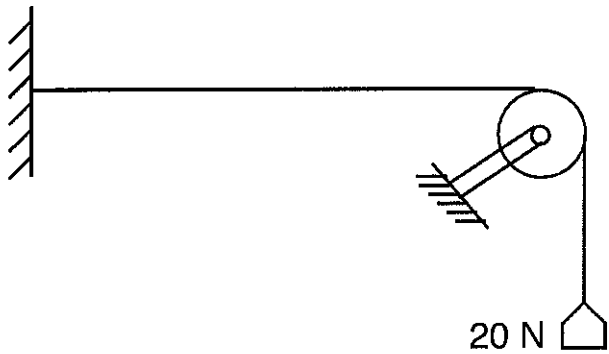


HOMEWORK - TENSION FORCES - DAY #2

Name: _____

Period: _____ Date: _____

1.)



a.) Determine the force of the rope pulling on the wall. _____

b.) What is the tension in the horizontal part of the rope? _____

c.) What is the tension in the vertical part of the rope? _____

d.) What assumptions must we make about the pulley in this type of problem? _____

Figure 4.29

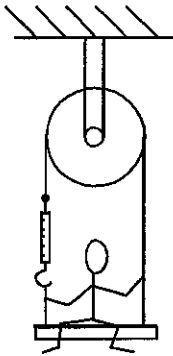
2.) Does it make sense to you that Superman would feel the same thing in both the situation with two horses and the situation with one horse and a tree? How do you make sense of this situation? If not, what troubles you most?

3.) A car is pulling on a cart with a stretched rubber rope, but the cart does not move because it is connected to a strong wall with a strong rope. How would you explain to a skeptic that the tension force in the rubber rope is equal to the tension force in the strong rope?



Figure 4.30

4.) A student sits on a swing with the two ropes joined as they pass over a pulley that hangs from the ceiling.

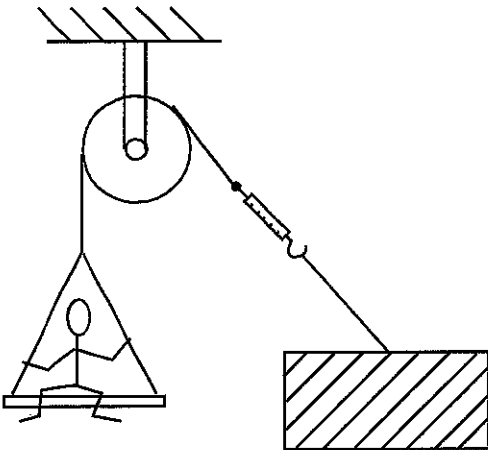


a.) If the student weighs 820 N, what would you expect the scale to read? _____

b.) What assumptions did you make in part a.)?

Figure 4.31

5.) The student from the previous problem now sits on another swing over the pulley shown below. The spring scale is attached to a massive cement block that will not move.



a.) What will the scale read in this situation? _____

Figure 4.32

6.) Explain how you would use an instrument to measure the force acting on one end of a rope.

7.) Consider the "tension force" acting in each of the three springs if the spring scale reads 60 N in the figure below.

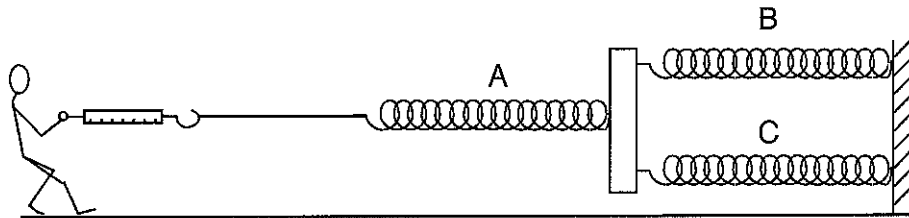


Figure 4.33

a.) Determine the tension in each of the springs.

Spring A _____; Spring B _____; Spring C _____

b.) Find the force exerted by the person on the scale. _____

8.) Explain how one could use a measuring device to measure the tension in the middle of a rope.

If two people pull on a spring scale that remains stationary, what is the meaning of the force reading shown on the scale? Which person does it apply to?

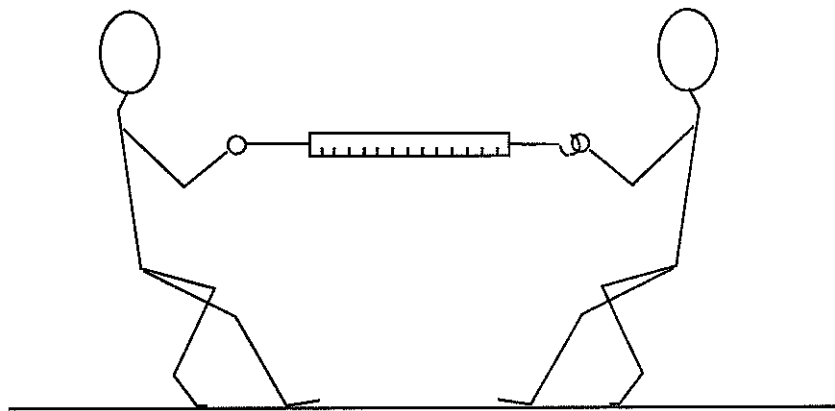


Figure 4.34

10.) In the set up on the right it is quite easy to talk about the force acting on either end of a rope or the tension somewhere in the rope. Use this example to explain clearly the difference between "force" and "tension".

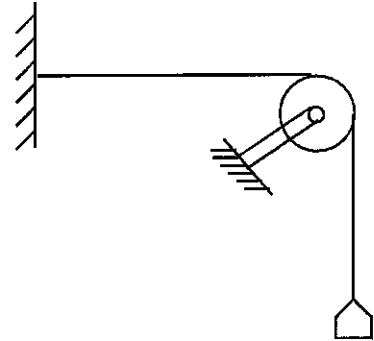


Figure 4.35