13.2 Worksheet - PS

13.2 Worksheet Name _____

Show work, write givens, circle final answer.

1. Draw and label a 1st, 2nd, and 3rd class lever.

2. What is the MA equation for a lever?

3. What is the MA equation for a pulley? (Hint: there are 2)

4. What is the MA for a lever with an input are of 40 cm and an output arm of 30 cm?

5. What is the length of the input arm of a lever if the lever has a MA of 6.5 and an output arm of 9 meters?

6. What is the MA of a single pulley hanging from the ceiling?

7. You need to pull down with 40 N of force to lift a 120 N box off the ground using a pulley. Are you using a block and tackle system? If so, how do you know and how many pulleys are there in the block and tackle?

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8. You incorrectly build a teeter-totter. One side if 5 meters away from the axle and the other side is 4.5 meters away from the axle. What is the MA of the teeter-totter? Does it matter which side you push down on? If it does, show how you know (back it up with math).

9. What is an example of a 1st, 2nd, and 3rd class lever? (Make sure to label each one)

10. Name and give examples of the 6 types of simple machines.

11. If you double the length of the input arm on a lever, the MA will _____

12. What is length of the output arm on a lever if the MA is 6.4 and the input arm is 450 cm long?

13. You have a block and tackle system with 4 pulleys. If you apply a 150 N for, what is the max force the block and tackle system could output?