Name: _____

Physical Science Chapter 14 Practice Sheet

Answer the following questions.

1. How much work does Juanita do if she uses a force of 40 newtons to pull 2 friends on a wagon for 32 meters?
    a. 1.25 J
    b. 640 N
    c. 1280 J
    d. 1280 N

2. A certain machine can output 50 Joules (J) of energy when 100 J of energy are input. If the amount of friction experienced by the machine is reduced, which of the following is most likely its output?
    a. 0 J
    b. 25 J
    c. 50 J
    d. 75 J

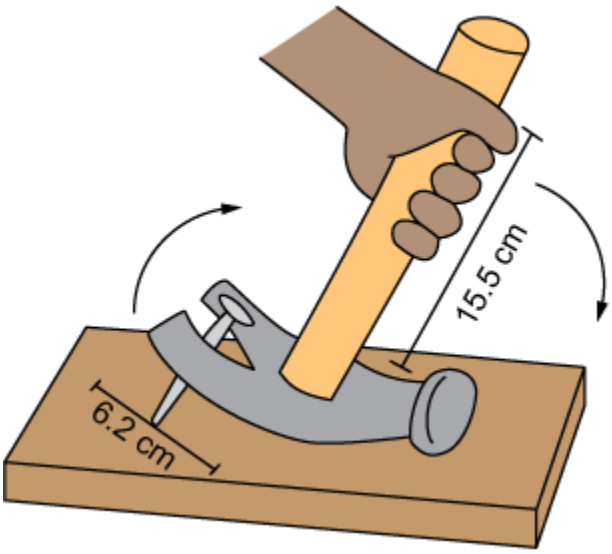
3. If the length of a resistance arm of a lever is 15.5 m, and the length of the effort arm is 2.50 m, what is the mechanical advantage of the lever?
    a. 0.16
    b. 1.0
    c. 1.16
    d. 2.0

4. If William drove the axe into a tree for an effort distance of 5.0 cm and the mechanical advantage of the axe is 0.85, what is the resistance distance of the split tree?
    a. 5.5 cm
    b. 5.9 cm
    c. 24 cm
    d. 42 cm

5. Which is the best way to increase the mechanical advantage of an inclined plane?
    a. by increasing the length of the inclined plane
    b. by decreasing the length of the inclined plane
    c. by increasing the output force of the inclined plane
    d. by decreasing the output force of the inclined plane

6. What happens to the energy not output by a machine?
    a. It is absorbed by the machine.
    b. It is destroyed by the machine.
    c. It is transformed into heat and lost to the atmosphere.
    d. It is transformed into light and lost to the atmosphere.

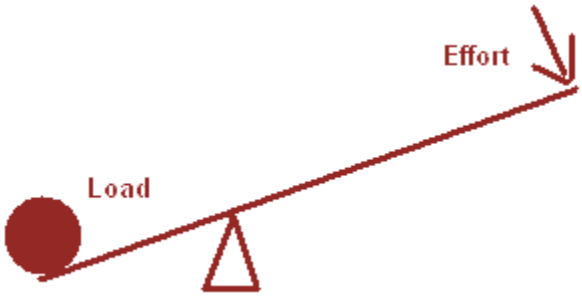
7. Andrea is building a birdhouse. She hammers a nail in the wrong place and needs to remove it. She uses the back of her claw hammer to hold the nail and pushes the handle to remove the nail, as shown in the diagram. Andrea is using the hammer as a simple machine to pry the nail out. What is the mechanical advantage of the hammer?



    a. 0.2
    b. 0.4
    c. 2.5
    d. 5.4

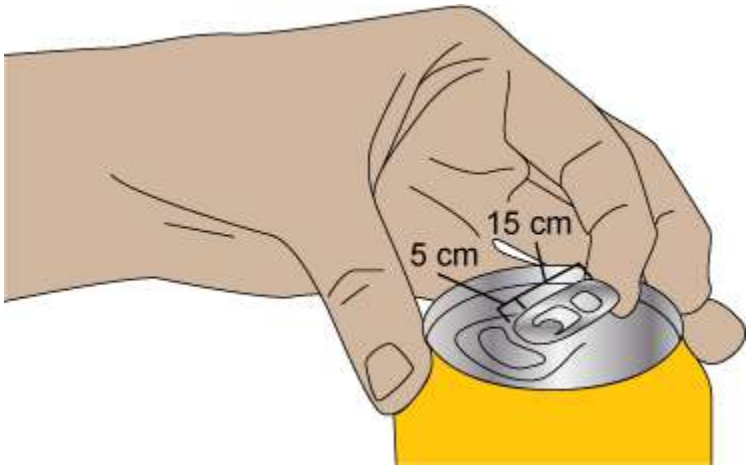
8. A brick mason builds a simple machine to lift bricks from the ground up to the second story of a building. The machine requires an input force of 35 N to lift 75 kg (735 N) of bricks. What is the ideal mechanical advantage (MA) of the simple machine?
    a. 0.048
    b. 2.143
    c. 35
    d. 21

9. This lever has a mechanical advantage of 2. What does the lever multiply?



a. It multiplies the output work by 2.
b. It multiplies the output force by 2.
c. It multiplies the output energy by 2.
d. It multiplies the output distance by 2.

10. Caleb opens a soda can by pulling on the tab. The picture shows Caleb opening the soda can. The tab is a simple machine. What is the mechanical advantage of the tab?



a. 0.3
b. 3.0
c. 10.0
d. 20.0