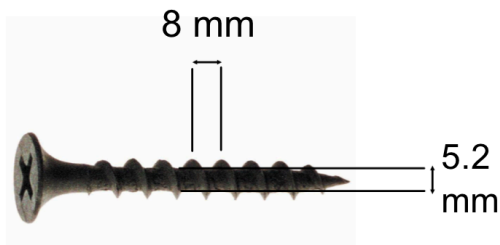
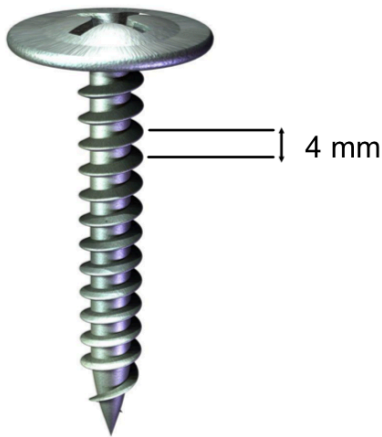


*Problems that only have answers will not earn points. All work must be shown.*

1. Find the mechanical advantage of the screw below



2. What is the diameter of the screw below if its mechanical advantage is 5?



3. A wheelchair ramp has a slope that's 102 ft long and a height that is 8.5 ft. What is the mechanical advantage of this inclined plane?
4. I want to take a piano up onto a stage that's 9 feet high. How long would the slope length have to be in order to make the force required to lift the piano 12 times less?
5. Provide an explanation of what it means for a ramp to have a mechanical advantage of 7. What does that mean to the everyday person? This should take a few sentences.

6. A splitting maul blade is 6 inches long and 2.8 inches wide at its widest. What mechanical advantage does this provide?
7. A butcher knife is 6 cm wide and 3 millimeters thick. What mechanical advantage does it provide?
8. Find the mechanical advantage provided by the first tier of stairs next to the elevator. Assume it follows the same rules as an inclined plane.
9. A four-wheeler is pulled up a loading ramp into a truck bed. The boards used to make the loading ramp are 12 feet long. The four-wheeler weighs 450 pounds but when you pull it up the ramp you only have to apply 150 pound of force. How tall is the truck bed?
10. Challenge! I want to make a ramp that has a height of 7 feet, and a length of 100 feet but I don't know the slope length. What is the mechanical advantage provided by this ramp?