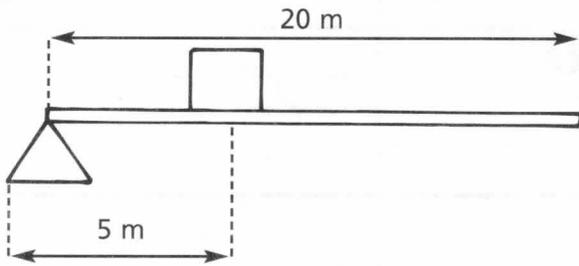
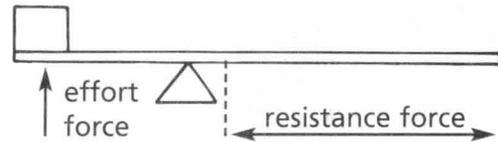
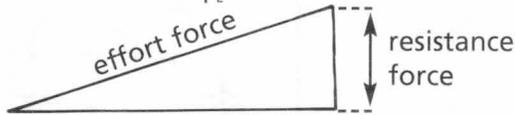


Mechanical Advantage of Inclined Planes and Levers

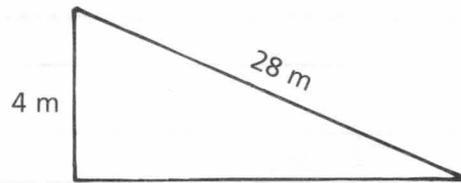
Mechanical advantage is the advantage created by a machine that enables people to do work while using less force. Use the example diagram to identify resistant force and effort force. Then use the formula to calculate the mechanical advantage for each diagram.

mechanical advantage = resistance force divided by effort force

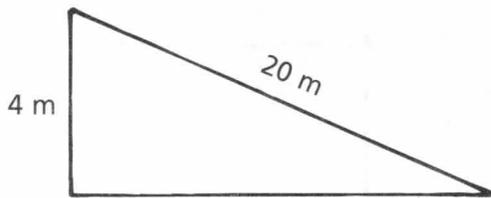
$$MA = \frac{F_R}{F_E}$$



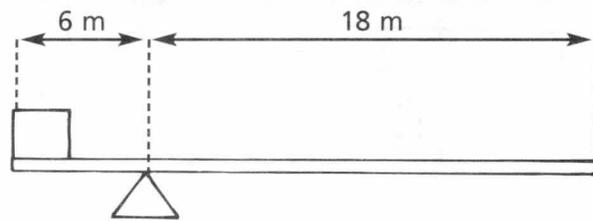
1 _____



2 _____



3 _____



4 _____

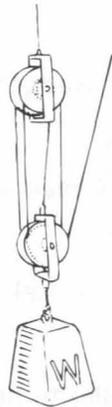
Mechanical Advantage of Pulleys, Wheels, and Axles

Pulleys create mechanical advantage. Wheels and axles work together to create mechanical advantage. Gears are a type of wheel and axle. Use the formula to calculate the mechanical advantage for each diagram.

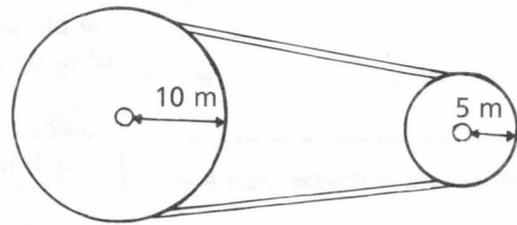
Mechanical advantage for pulleys: When the length of line you pull on is equal in length to the distance you move the load, the mechanical advantage (ma) is 1. Each time you add another length to the distance you must pull, by adding another wrap around a pulley, the mechanical advantage increases by 1 more.

Mechanical advantage for wheels and axles:

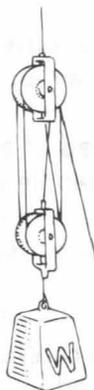
$$MA = \frac{\text{radius of the wheel}}{\text{radius of the axle}}$$



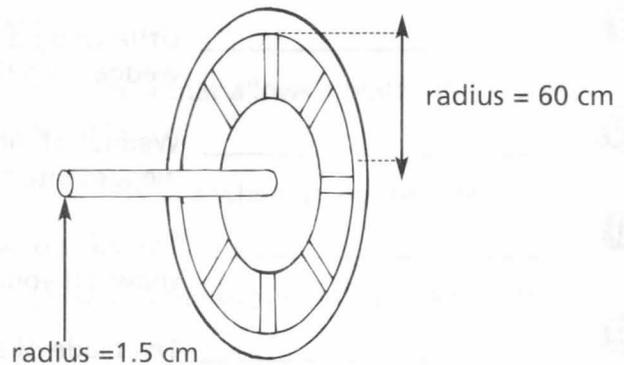
1 _____



2 _____



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