Mechanical Advantage of Simple Machines

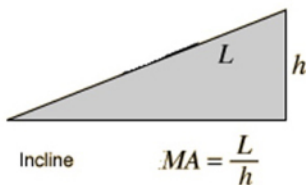$$MA = \frac{L_e}{L_r}$$
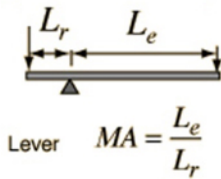
Lever

MA- Lever

MA= <u>length of effort</u>
length of resistance

$$MA = \frac{R}{r}$$
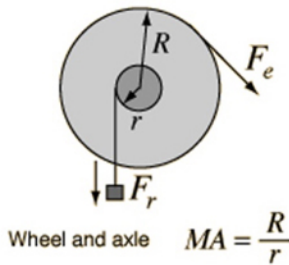
Wheel and axle

MA- Wheel and Axel

MA= <u>radius of wheel</u>
radius of axel

$$MA = N$$
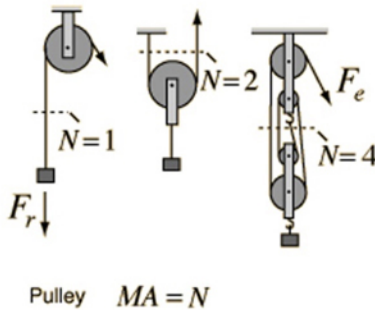
Pulley

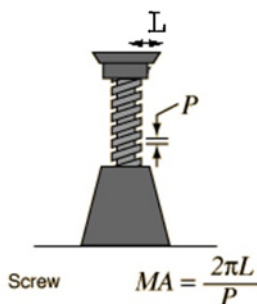### MA- Pulleys

MA= **number of ropes or chains supporting the load.**

(count the string you pull on if you pull up. Do NOt count the string you pull on if you pull down).

$$MA = \frac{L}{h}$$

Incline

MA- Inclined Plane

MA= **length of slope**
height of inclined plane

$$MA = \frac{L}{W}$$
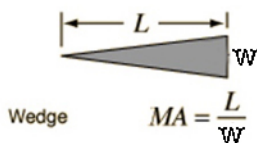
Wedge

MA- Wedge

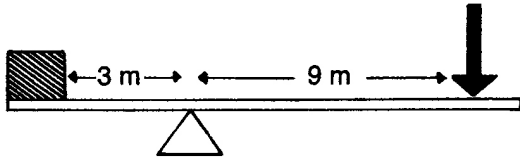MA= <u>length of wedge</u>
width of wedge.

$$MA = \frac{2\pi L}{P}$$

Screw

MA- Screw

MA= <u>2πL (L=radius of screw head surface)</u>
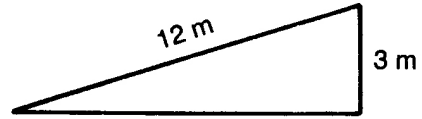P (distance between threads)

MECHANICAL ADVANTAGE

Name _____

What is the mechanical advantage of the following simple machines?

1.
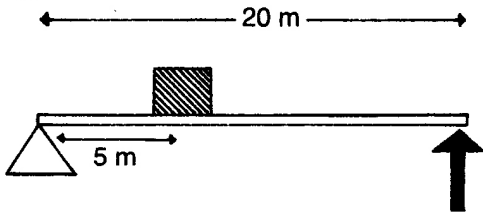
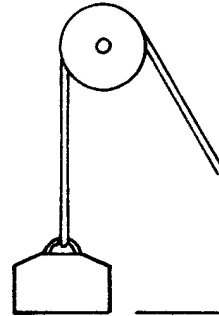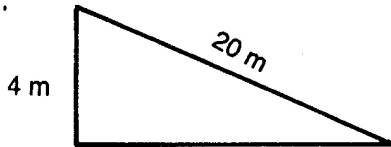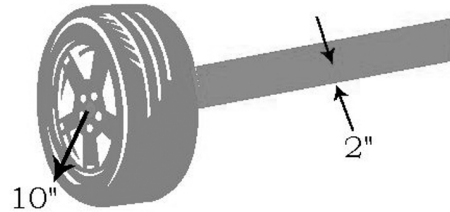←3 m→ ←——— 9 m ———→

_____

2.

12 m

3 m

_____

3.

←——— 20 m ———→

5 m

_____

4.

_____

5.

20 m

4 m

_____

6.

10"

2"

_____

7.

_____

8.

_____