Hydraulics A

1. If the hydraulic system at my mechanic shop has a large piston below the cars with an area of 100cm^2, and the pump piston supplying the pressure to the line has an area of 2cm^2, how much force would I have to apply to the pump piston to lift a 1000kg car?

2. If the hydraulic system at my mechanic shop has a large piston below the cars with an area of 120cm^2, and the pump piston supplying the pressure to the line has an area of 3cm^2, how much force would I have to apply to the pump piston to lift a 1200kg car?

3. If you weigh 120 pounds and push down on a pump with a 2 square inch cylinder, what is the maximum pressure you can create?

Answers to part B

1. 250N
2. 400N
3. 60 PSI (pounds per square inch)

Hydraulics B

1. If the hydraulic system at my mechanic shop has a large piston below the cars with an area of 80cm^2, and the pump piston supplying the pressure to the line has an area of 2cm^2, how much force would I have to apply to the pump piston to lift a 1000kg car?

2. If the hydraulic system at my mechanic shop has a large piston below the cars with an area of 90cm^2, and the pump piston supplying the pressure to the line has an area of 3cm^2, how much force would I have to apply to the pump piston to lift a 1200kg car?

3. If you weigh 150 pounds and push down on a pump with a 2.5 square inch cylinder, what is the maximum pressure you can create?

Answers to part A

1. 200N
2. 300N
3. 60 PSI (pounds per square inch)