PASCAL´S LAW EXERCISES

1. A hydraulic lift office chair has its seat attached to a piston with an area of 11.2 cm2 . The chair is raised by exerting force on another piston, with an area of 4.12 cm2 . If a person sitting on the chair exerts a downward force of 219 N, what force needs to be exerted on the small piston to lift the seat?

N

2. In changing a tire, a hydraulic jack lifts 7468 N on its large piston, which has an area of 28.27 cm2 . How much force must be exerted on the small piston if it has an area of 1.325 cm2 ?

N

3. An engine shop uses a lift to raise a 1784 N engine. The lift has a large piston with an area of 76.32 cm2 . To raise the lift, force is exerted on a small piston with an area of 12.56 cm2 . What force must be exerted to raise the lift?

N

4. A student in the lunchroom blows into his straw with a force of 0.26 N. The column of air pushing the liquid in the glass has an area of 0.21 cm2 . If the liquid in the glass pushes upward with a force of 79 N, what is the area of the liquid at the surface of the glass?

cm2

5. A factory lift is used to raise a load of 2225 N on a piston that has an area of 706.8 cm2 . How much pressure does the lift's engine need to exert on the hydraulic fluid to lift the required load?

Pa (N/m2)

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