

Name: _____ Class: _____ Date: _____

Exercise 6 Pressure

1. Complete these sentences.

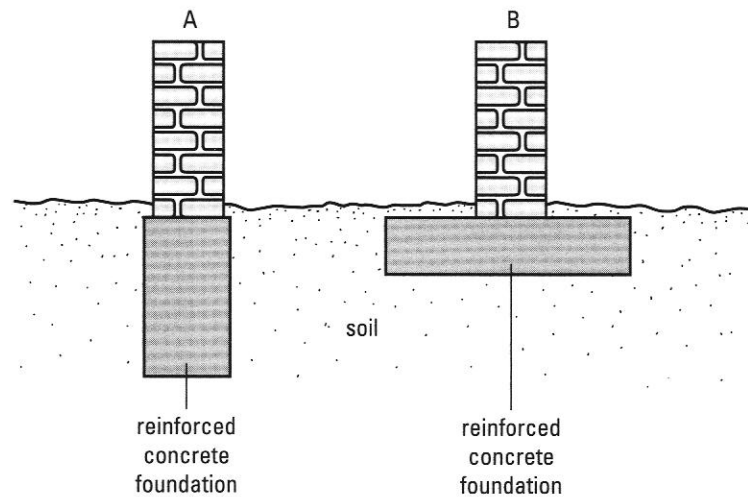
(a) Pressure is defined as _____ per unit _____.

(b) The SI unit for pressure is the _____ or _____.

2. Complete the following table to find the force, area or pressure.

Force	Area	Pressure
400 N	2 m ²	
45 N	5 cm ²	
60 kN		15 kPa
	3 m ²	6 kPa
	20 cm ²	1500 Pa

3. Two building contractors proposed different ways to build a wall on soft ground. Their suggestions are shown in the figure below.



Which suggestion is more suitable? Why?

4. A ballet dancer who has a weight of 480 N stands on her toes during a performance with 25 cm² in contact with the floor. What is the pressure exerted by the dancer on the floor?
5. The four tyres of a car are inflated to a gauge pressure of 200 kPa. Each tyre has an area of 0.015 m² in contact with the road.
- (a) What is the weight of the car?
- (b) If the pressure in the tyres has been reduced to 150 kPa, what is the area of contact of each tyre with the road?
6. A tank with vertical sides and a base area of 0.050 m² contains mercury of density 13 600 kg m⁻³ and depth 6.0 m. Taking the weight of 1 kg to be 10 N, calculate
- (a) the weight of mercury in the tank,
- (b) the pressure that the mercury exerts on the base of the tank.