Exercise 3.5B Calculating pressure

1 A force of **20 N** acts on each (1) **cm²** of area.

2 pressure $= \dfrac{\text{force}}{\text{area}}$

$\qquad = \dfrac{15}{60}$

$\qquad = 0.25 \, (\text{N/cm}^2)$

3 pressure $= \dfrac{\text{force}}{\text{area}}$

force = pressure × area
$\qquad = 60 \times 0.5$
$\qquad = 30 \, \text{N}$

4 pounds per square inch

Exercise 3.5C Variables affecting pressure

1 area (at end of thorn) is very small; pressure on skin will be large; pressure $= \dfrac{\text{force}}{\text{area}}$; other parts of stem would have larger area, so smaller pressure on skin

2 area in contact with ground is larger; so pressure is smaller; pressure $= \dfrac{\text{force}}{\text{area}}$

3 with sharp knife, area in contact with bread is smaller; so pressure is larger; pressure $= \dfrac{\text{force}}{\text{area}}$

4 End A has large area to decrease pressure on thumb when pushing, so less likely to be painful.

End B has small area to increase pressure on the surface, so more likely to go into surface.