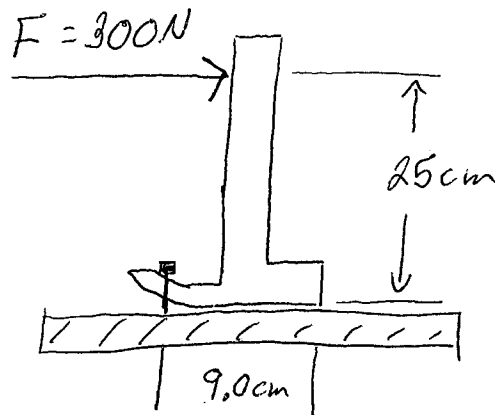


Compute the force applied to a nail by the hammer shown below.



Solution

Compute the torque about the front edge of the hammer.

$$\sum \tau = F_{\text{nail}} \tau_{\text{nail}} + F_{\text{applied}} \tau_{\text{applied}} = 0$$

↻ clockwise torque

$$0 = F_{\text{Nail}} (9.0\text{ cm}) + (300\text{ N}) 25\text{ cm}$$

$$F_{\text{Nail}} = \frac{300\text{ N} (25\text{ cm})}{9.0\text{ cm}} = 833.33\text{ N}$$

$$\boxed{830\text{ N}}$$