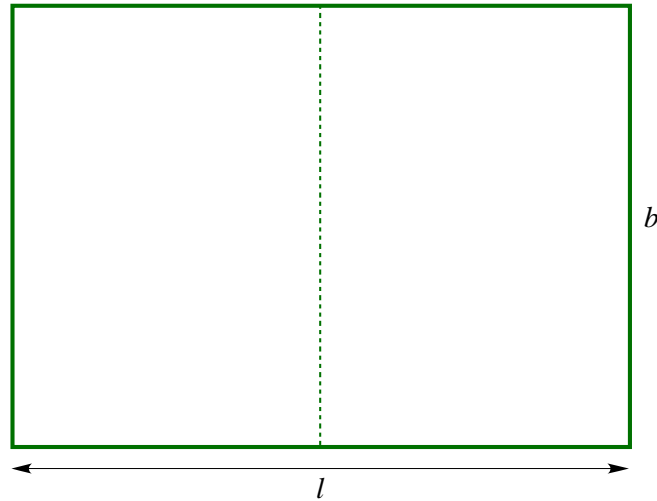


Mathematics of A4 Paper

Prove that the ratio of the length to the width of any A-series size paper is $\sqrt{2} : 1$.



Proof

$$\frac{l}{b} = \frac{b}{\frac{1}{2}l}$$

$$l \times \left(\frac{1}{2}l\right) = b \times b$$

$$\frac{1}{2}l^2 = b^2$$

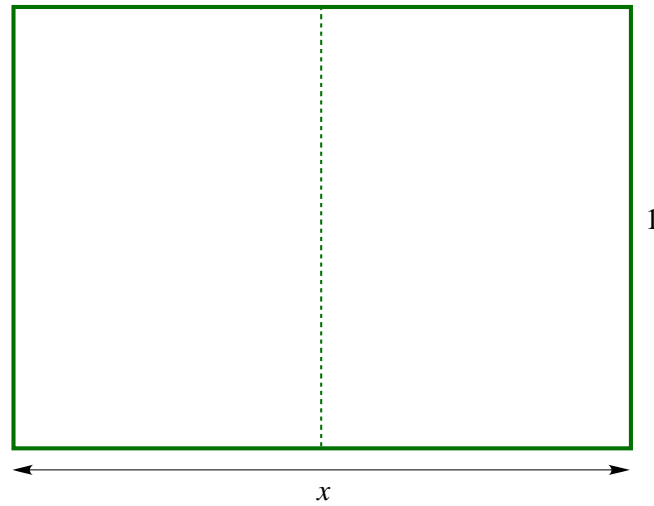
$$l^2 = 2b^2$$

$$\frac{l^2}{b^2} = 2$$

$$\frac{l}{b} = \sqrt{2}$$

So the ratio is $\sqrt{2} : 1$.

Alternatively, we could let the ratio of the length to the width of the paper be $x : 1$.



Proof

$$\frac{x}{1} = \frac{1}{\frac{1}{2}x}$$

$$x \times \left(\frac{1}{2}x\right) = 1$$

$$\frac{1}{2}x^2 = 1$$

$$x^2 = 2$$

$$x = \sqrt{2}$$

So the ratio is $\sqrt{2} : 1$.