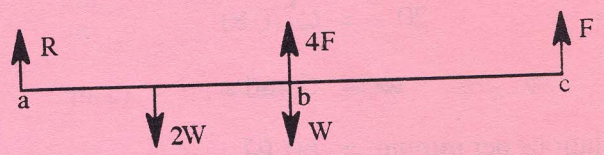
1996

7 (a)



Moments about a

$4F(1) + F(2) =$ 5

$2W(0.5) + W(1)$ 5

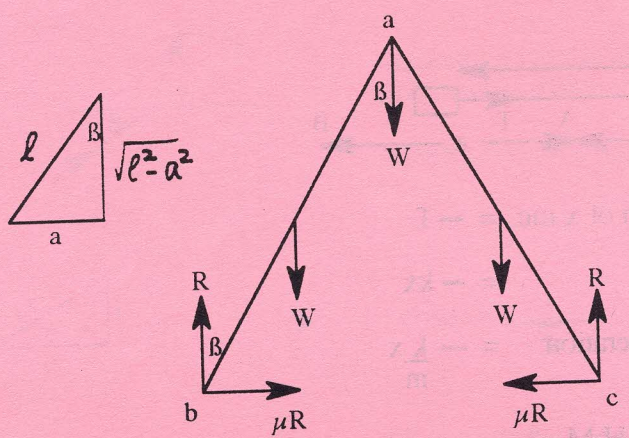
$\Rightarrow \quad F = \frac{W}{3}$ 5

Resolve vertically

$R + 5F = 3W$

$\Rightarrow \quad R = \frac{4W}{3}$ 5 20

(b)



Force W at a 5

Other forces 5

Resolve vertically: $2R = 3W$ 5

$R = \frac{3W}{2}$

Moments about a for rod ab

$\mu R.\ell\cos ß + W.\frac{1}{2}\ell\sin ß =$ 5

$R.\ell\sin ß$ 5

$\Rightarrow \quad \mu R + \frac{1}{2}W\tan ß = R\tan ß$

$\mu R = \frac{2}{3}R\tan ß$

$\mu = \frac{2a}{3\sqrt{\ell^2 - a^2}}$ 5 30