

Question number	Answer	Notes	Marks
3 (a)	(i) X drawn at the base of the weight arrow;	judge by eye	1
	(ii) weight = mass $\times$ gravitational field strength;	allow standard symbols and rearrangements e.g. $W = m \times g$ ignore 'gravity' for $g$	1
	(iii) substitution; evaluation;  e.g. (W =) $130 \times 10$ (W =) 1300 (N)	-1 for POT error only e.g. from incorrectly converting kg to g  allow $g = 9.8, 9.81$ allow 1274, 1275.3	2
(b)	(i) in equilibrium / when balanced; (sum of) clockwise moment(s) = (sum of) anti-clockwise moment(s);	allow idea that net moment is zero	2
	(ii) correct expression for either moment; correct use of principle of moments; evaluation of distance X;  e.g. $1300 \times 0.30$ OR $520 \times X$ $1300 \times 0.30 = 520 \times X$ $X = 0.75$ (m)	allow ecf from (a)(iii)	3
	(iii) (length of plank =) 1.5 (m);	allow ecf from (b)(ii)	1

Total for Question 3 = 10 marks