Question number		Answer	Notes	Marks
2	(a)	substitution into moment = force × distance;	accept dimensionally correct substitution	3
		evaluation;	-1 for POT error	
		matching unit;	condone case error	
		e.g.		
		moment = 28 × 0.15	allow 28 × 15	
		(moment =) 4.2 N m	allow 420 N cm	
	(b)		allow pivot for nut	2
		apply a larger force / eq;		
		apply force further from nut / eq;	allow use a longer wrench condone bigger wrench	
	(c)	(i)	circumference of circle calculated;		2
		divided by 4 to find distance;	answer evaluated as a decimal only ecf candidate's circumference	
		e.g.	22/7 for π gives 94.3	
		(circumference = $2\pi r = 2 \times \pi \times 15$) = 94(.2) (cm)		
		(distance = 94 / 4 =) 24 (cm)	allow anything that would round to 24 (cm)	
			condone 23.5 (cm)	
		(ii)	conversion of cm to m;	allow ecf from (i) seen explicitly or implied by working	3
		substitution;		
		evaluation;	answer evaluated as a decimal only -1 for POT error	
		e.g.		
		work done = force × distance		
		work done = 28 × 0.24 (work done =) 6.7 (J)	allow any answer that rounds to 6.6 (J) or 6.7 (J) using 0.94 for the distance gives an answer that rounds to 26 (J) ecf 3 marks	

Total for Question 2 = 10 marks