Question Number	Answer	Mark
13(a)	Vertical component of tension = $T \cos 76°$ **(1)** Use of 650 N = 2 × vertical component of tension **(1)** $T = 1.34 \times 10^3$ (N) **(1)** <u>Example of calculation</u> 650 N = 2 $T \cos 76°$ T = ½ × 650 N ÷ cos 76° = 1 343 N	**3**
13(b)(i)	Use of sin76° or cos 14° to find new length of cord **(1)** Use of $\varepsilon = \Delta x \div x$ **(1)** ε = 0.03 or 3% **(1)** <u>Example of calculation</u> $(x + \Delta x) \div 2$ = 60 m ÷ sin 76° = 61.8 m Δx = (61.8 × 2) m − 120.0 m = 3.7 m ε = 3.7 m ÷ 120 m = 0.031	**3**
13(b)(ii)	Use of $\sigma = F \div A$ with F = tension from (a) **(1)** Use of $E = \sigma \div \varepsilon$ **(1)** $E = 1.4 \times 10^8$ Pa (ecf from (a) and (b)(i)) **(1)** <u>Example of calculation</u> $\sigma = 1.34 \times 10^3$ N ÷ 3.14×10^{-4} m^2 = 4.28 MPa E = 4.28×10^6 Pa ÷ 0.031 = 1.38×10^8 Pa	**3**
	Total for question 13	**9**