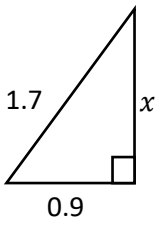
D2	Answers to the Calculator Paper	
1	Mark 1 know to multiply $5.6 \times 4.3 \times 10^{12}$ Mark 2 answer in scientific notation 2.408×10^{13}	
2	Mark 1 substitute correctly into sine rule $\frac{\sin EDF}{14} = \frac{\sin 33}{9}$ Mark 2 rearrange $\sin EDF = 14 \times \frac{\sin 33}{9}$ Mark 3 calculate angle EDF correctly $EDF = \sin^{-1}(0.847216..) = \mathbf{57.9°}$	
3	Mark 1 Find the volume of sphere $V_{sphere} = \frac{4}{3} \times \pi \times 4^3$ Mark 2 Find the volume of the cylinder $V_{cylinder} = \pi \times 4^2 \times 12$ Mark 3 Know that the volume of the capsule is found by addition $V_{sphere} + V_{cylinder}$ Mark 4 Carry out all calculations correctly, give all your answers in unrounded form where possible $V_{sphere} = 268.0825731, \quad V_{cylinder} = 603.1875895,$ $V_{capsule} = V_{sphere} + V_{cylinder} = 871.2683626$ Mark 5 Correctly rounded answer with units $\boldsymbol{V = 870\ mm^3}$ You can lose one mark for: • Using the diameter of 8 cm rather than the radius of 4cm $(4557.4 \ldots mm^3)$ • Using the height of the solid (20 cm) for the height of the cylinder $(1273.3922 \ldots cm^3)$ • Rounding too early in your calculations	
4	Mark 1 correct bracket with square $(x-5)^2..$ Mark 2 complete process $\boldsymbol{(x-5)^2-3}$	
5	Mark 1 start to factorise (one factor correct) $(6x+7)\ or\ (x-1)$ Mark 2 complete factorisation $\boldsymbol{(6x+7)(x-1)}$	
6	Mark 1 know that tickets sold are 92% $92\% = 552\,000$ Mark 2 use a valid strategy to find 1% or 10% etc $1\% = 552\,000 \div 92$ Mark 3 calculate answer correctly $\mathbf{600\,000}$ 2 marks will be given for assuming that $108\% = 552000$ so $100\% = 511111$ No marks will be given for adding 8% to 552000 $(596160$ tickets $)$	
7	Mark 1 substitute correctly into cosine rule $\cos B = \frac{10^2+12^2-18^2}{2\times10\times12}$ Mark 2 calculate value for cos B $\cos B = -\frac{1}{3}$ Mark 3 calculate angle ABC correctly $B = \cos^{-1}\left(-\frac{1}{3}\right) = \mathbf{109°}$ Mark 4 Know how to find the angle $360° - 109° - (180° - 50°)$ Mark 5 calculate a second value for x $\boldsymbol{x = 121°}$	

8	Mark 1 Recognise right angled triangle  Mark 2 consistent statement of Pythagoras $x^2 = 1.7^2 - 0.9^2$ Mark 3 calculate a value for the missing side $x = 1.44$ Mark 4 Calculate the width $1.7 + 1.44 = \mathbf{3.14\ m}$ 2 marks can be given for $x^2 = 1.7^2 + 0.9^2, x = 1.9,$ so height is $1.7 + 1.9 = 3.6\ m$ 2 marks can be given for $x^2 = 1.9^2 - 1.7^2, x = 0.6,$ so height is $1.7 + 0.6 = 2.3\ m$	
9	Mark 1 substitute correctly into the formula $10.8 = 7 + 5\sin t$ Mark 2 rearrange $\frac{3.8}{5} = \sin t\ ,\ or\ \sin t = \frac{19}{25}$ Mark 3 Calculate the first value for t $\boldsymbol{t = 49.5°}$ Mark 4 Calculate the second value for t $\boldsymbol{t = 130.5°}$	
	30 marks	