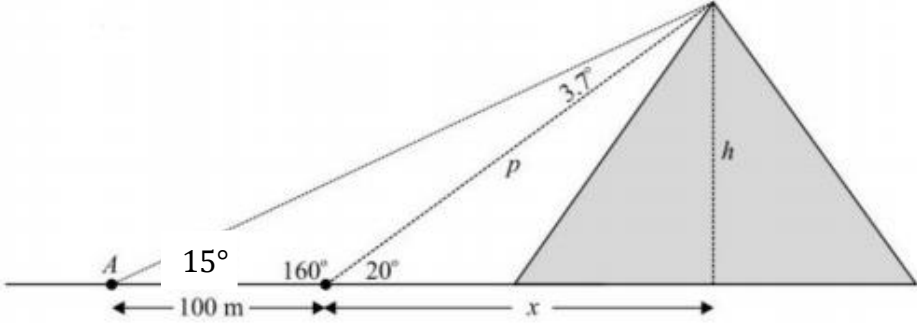
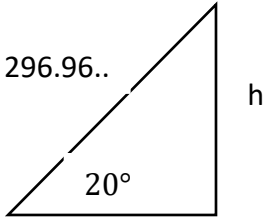
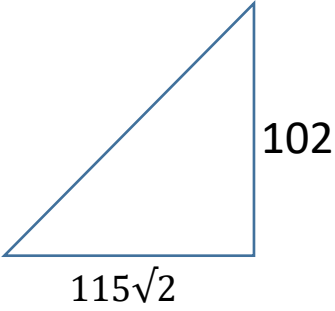


Q8	Model Solution – 50 Marks	Marking Notes
(a)(i)		<p>MS (0, 5, 10)</p> <p>PC: At least 1 correct measurement</p>
(ii)	$\frac{a}{\sin a} = \frac{b}{\sin b}$ $\frac{a}{\sin 15} = \frac{100}{\sin 5} \quad (5^\circ = 180 - (160 + 15))$ $a = \frac{100(\sin 15)}{\sin 5}$ $a = 296.96169$  <p>SOH CAH TOA</p> $\sin(20) = \frac{h}{296.96169}$ $h = 101.5663 = 102m$	<p>MS(0,4,8,10)</p> <p>LPC: any work of merit in the right direction</p> <p>HPC: y found correctly and attempt to use this value to find h (or other correct method with just one error)</p> <p>** 9 marks for rounding and or units error**</p>
(b)	<p>SOH CAH TOA</p> $\cos 45 = \frac{x}{230}$ $x = 230(\cos 45)$ $x = 115\sqrt{2} \text{ m}$ <p>OR</p> $d^2 = 230^2 + 230^2$ $d = \sqrt{105800}$ $r = \frac{\sqrt{105800}}{2} \text{ m}$ <p>OR</p> $\cos 45 = \frac{230}{d}$ $d = 230\sqrt{2}$ $r = 115\sqrt{2} \text{ m}$	<p>MS (0, 4, 8, 10)</p> <p>LPC: any work of merit in the right direction</p> <p>HPC: any correct method with only one error in the calculation</p> <p>** 9 marks for unit error or surd equivalent to 162.63m **</p>

(c)	 $c^2 = a^2 + b^2$ $S_2 = (102)^2 + (115\sqrt{2})^2$ $S_2 = 36854$ $S_2 = 192$	<p>MS (0, 4, 8, 10)</p> <p>LPC: Pythagoras identified with some substitution</p> <p>HPC: 1 minor error in solution</p> <p>** 9 marks for rounding and or units error**</p>
(d)	$c^2 = a^2 + b^2$ $(192)^2 = (115)^2 + h^2$ $h^2 = 23639$ $h = 153.7$ <p>$S_2 = \text{Perpendicular height of the triangular faces}$</p> $\text{Area of the 4 faces} = 4 \left(\frac{1}{2} bh \right)$ $= 4 \times \frac{1}{2} \times 230 \times 153.7$ $= 70702m^2$ $= 71000m^2$	<p>MS (0, 4, 6, 8, 10)</p> <p>LPC: Work of merit to find perpendicular height</p> <p>MPC: Work of merit to find one area</p> <p>HPC: Multiplying the area of the triangle found by 4</p> <p>** 9 marks for rounding and or units error**</p>