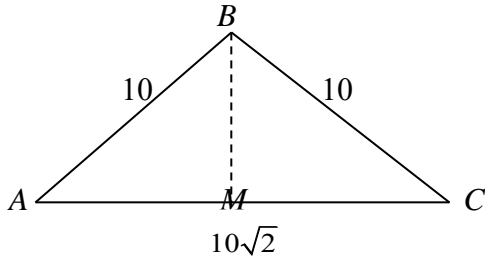
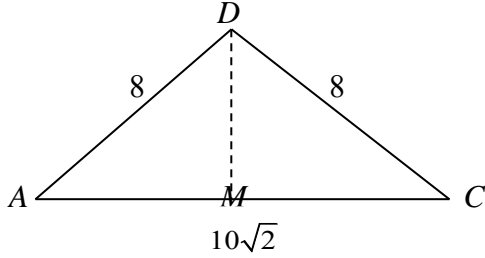
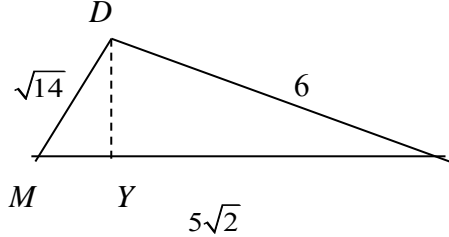
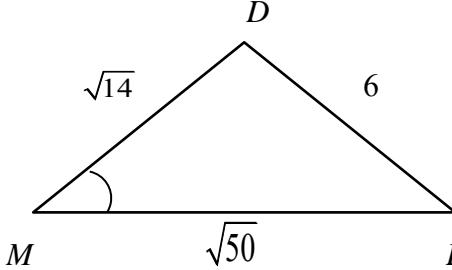


Question number	Scheme	Marks
9 (a)	$AC = \sqrt{10^2 + 10^2} = \sqrt{200} = 10\sqrt{2}$	M1A1 [2]
(b)	 $BM = \sqrt{10^2 - (5\sqrt{2})^2} = 5\sqrt{2}$	M1A1 [2]
(c)	 $DM = \sqrt{8^2 - (5\sqrt{2})^2} = \sqrt{14}$ $\angle DMB = \cos^{-1} \left(\frac{14 + 50 - 36}{2 \times \sqrt{14} \times 5\sqrt{2}} \right) = 58.0519...^\circ \approx 58.1^\circ$	M1A1 [4]
(d)	<p>Let perpendicular from point D to BM be the point Y</p>  <p>Vertical height of shape $ABCD$</p> <p>In triangle DMY (above)</p> <p>Height = $DY = \sqrt{14} \sin 58.0519^\circ = 3.1749... \approx 3.17$ (cm)</p>	M1A1 [2]
Total 10 marks		

Part	Mark	Notes
(a)	M1	For using Pythagoras theorem correctly on triangle ABC to find AC
	A1	For $AC = 10\sqrt{2}$
(b)	M1	For using Pythagoras theorem or any appropriate trigonometry correctly on triangle ABC to find BM
	A1	For the correct length $BM = 5\sqrt{2}$ NB: Allow for the answer just seen without any working as the triangle ABC is isosceles.
(c)	M1	For using Pythagoras theorem to find the length DM
	A1	For $DM = \sqrt{14}$ or accept awrt 3.74
	M1	For using cosine rule to find the required angle DMB <div style="text-align: center;">  <p>Diagram of triangle DMB. Vertex D is at the top, M is at the bottom left, and B is at the bottom right. Side DM is labeled $\sqrt{14}$. Side DB is labeled 6. Side MB is labeled $\sqrt{50}$. An arc is drawn at vertex M to indicate the angle to be found.</p> </div>
	A1	For awrt 58.1°
(d)	M1	For using any appropriate trigonometry to find the required length. Ft their angle DMB
	A1	For awrt 3.17 (cm) Accept 3.18 (cm)