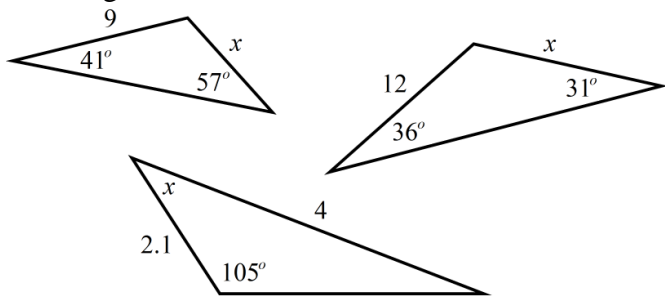


www.m4ths.com – Sine & Cosine Rule and Area

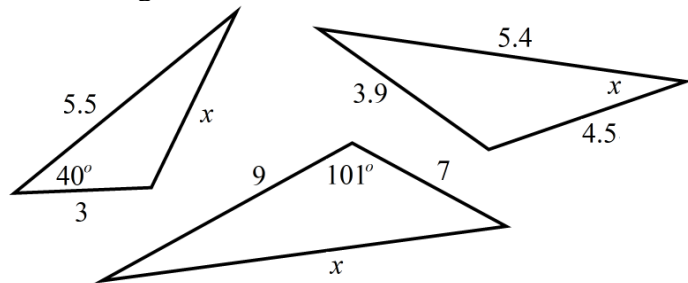
(1) Use the sine rule to find the value of x in each of the triangles below:



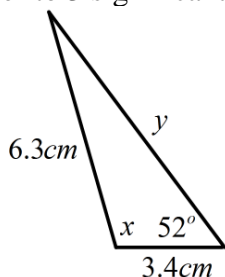
(2) In triangle ABC , $AB = 10\text{cm}$, $BC = 6\text{cm}$ and $\angle BAC = 35^\circ$.

Find the two possible sizes of $\angle ACB$ giving you answer to 3 significant figures.

(3) Use the cosine rule to find the value of x in each of the triangles below:

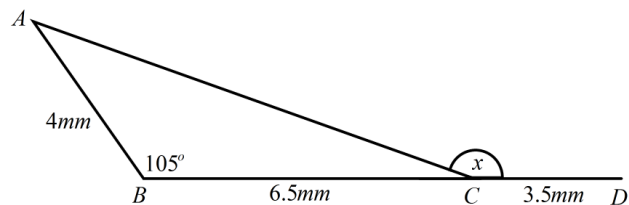


(4) Find the value of x and y in the triangle below giving each answer to 3 significant figures.



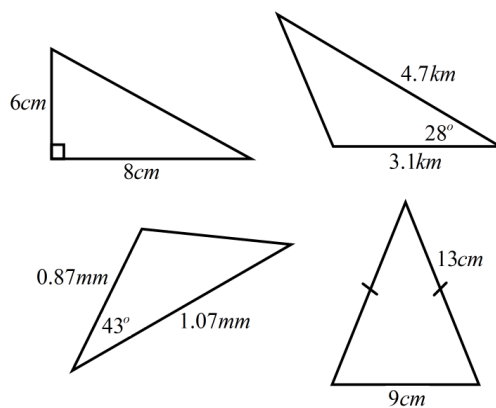
(5) In the diagram below BCD is a straight line.

- (a) Find the size of the obtuse angle x .
 (b) Find the length AD giving your answers to 3 significant figures.



(c) A line from point A is drawn such that it's perpendicular to the line BCD . Find the shortest distance from point B to the line.

(6) Find the area of each triangle giving your answers to 1 decimal place where appropriate.

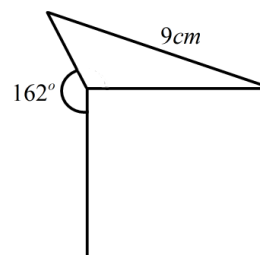


(7) Fred is standing at a point looking north. He walks on a bearing of 056° for 9.8km before stopping. He then walks an additional 3.5km on a bearing of 112° before stopping again. Find out how far he is away from his starting point.

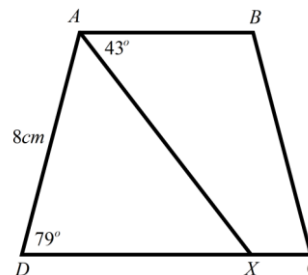
(8) Sue walks around the perimeter of a triangular field. She walks west from one corner of the field for 480m before stopping at the second corner. She then walks an additional 312m on a bearing of 072° to complete the second side of the field.

- (a) How long is the third side of the field?
 (b) Find the total area of the enclosed field.

(9) The diagram below shows a square with a triangle attached to one side. The triangle and the square share one side length. Given that the area of the square is 49cm^2 , find the area of the triangle as a percentage of the area of the square. Round your answer to the nearest one percent.



(10) Below is a picture of the isosceles trapezium $ABCD$. The line BX is perpendicular to the line DC , $\angle BAX = 43^\circ$ and $\angle ADX = 79^\circ$.



- (a) Find the length of the line AX .
 (b) Find the area of $\triangle ADX$
 (c) Find the area of the quadrilateral $ABCX$