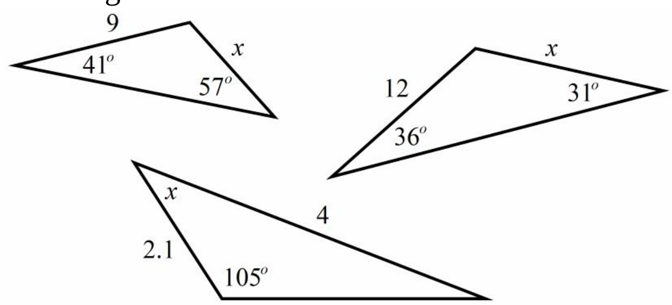
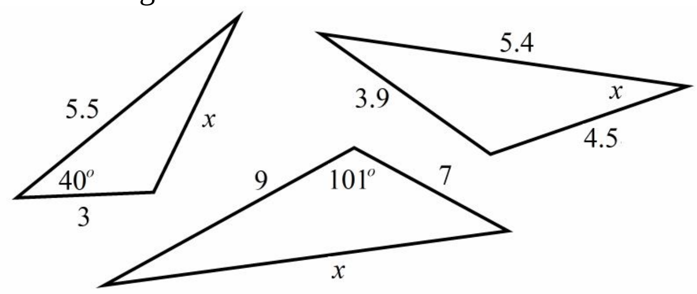
www.m4ths.com – C2 – Sine and Cosine Rule

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

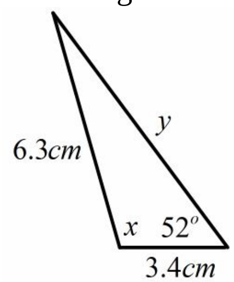


(2) In triangle ABC, $AB = 10cm$, $BC = 6cm$ and $\angle BAC = 35^o$.
Find the two possible sizes of $\angle ACB$ giving you answer to 3 significant figures.

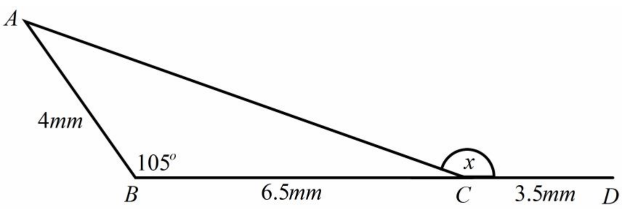
(3) Use the cosine rule to find the value of x in each of the triangles below:



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

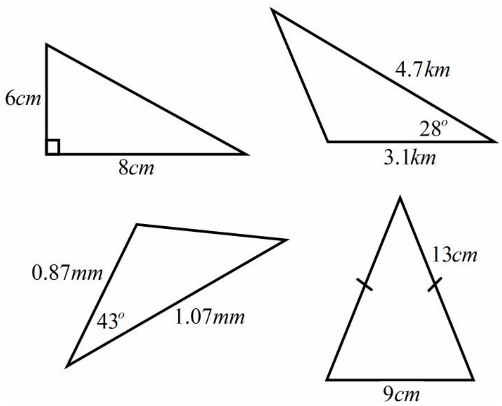


(5) In the diagram below BCD is a straight line.
(a) Find the size of the obtuse angle x.
(b) Find the length AD giving your answers to 3 significant figures.



(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.

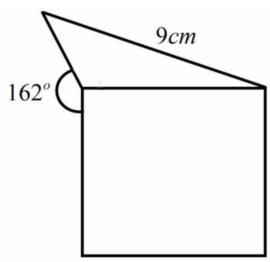
(6) Find the area of each triangle giving your answers to 1 decimal place where appropriate.



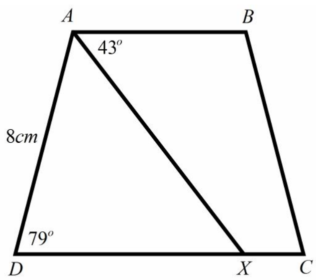
(7) Fred is standing at a point looking north. He walks on a bearing of 056^o for $9.8km$ before stopping. He then walks an additional $3.5km$ on a bearing of 112^o before stopping again. Find out how far he is away from his starting point.

(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^o 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, $\angle BAX = 43^o$ and $\angle ADX = 79^o$.



(a) Find the length of the line AX.
(b) Find the area of ΔADX
(c) Find the area of the quadrilateral $ABCX$