

PRACTICE 2.1 – The Cosine Law

* Full, worked solutions can be found in the folder linked on the Course Website ☺

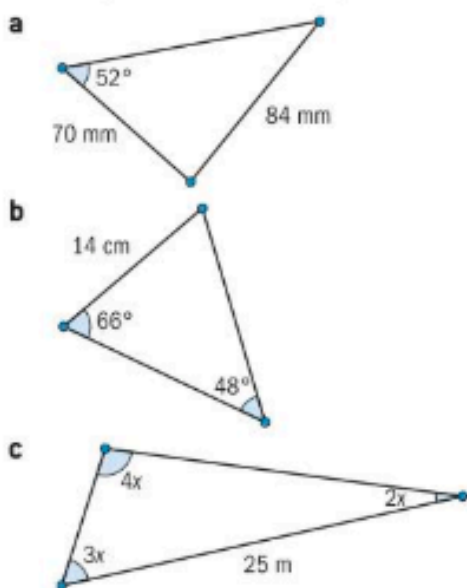
Exercise 2B



- 1 Use the given information to find all sides and angles in each triangle.

- a $a = 12$ cm, $b = 6.5$ cm and $c = 7$ cm
- b $a = 11$ mm, $b = 14$ mm and $c = 18$ mm
- c $c = 22$ m, $\hat{A} = 25^\circ$ and $\hat{B} = 83^\circ$

- 2 Use the given information to find all sides and angles in each triangle.



- 3 A surveyor has to determine the distance between points A and B that lie on opposite banks of a river. Another point C is 450 m from A, on the same side of the river, such that $\hat{BAC} = 45^\circ$ and $\hat{ACB} = 55^\circ$. Find the distance from A to B to the nearest metre.

- 4 A hiker leaves camp and walks 5 km on a bearing of 058° . He stops for a break, then continues walking for another 8 km on a bearing of 103° . He stops again before heading straight back. Find the distance back to camp from the second stop.

- 5 The straight-line distance between two cities A and B is 223 km. The straight-line distance between cities A and C is 152 km. The straight-line distance between cities B and C is 285 km.

Find the angles between each of the three cities.

- 6 To find the third side of $\triangle ABC$ with $AB = 40$ cm, $BC = 25$ cm and $\hat{BAC} = 35^\circ$, Velina and Kristian offered the following suggestions:

Kristian suggested: "Use the cosine rule as you are given two sides and one angle."

Velina suggested: "Use the sine rule as you are given two sides and an angle opposite to one of them."

State whose method is correct and justify your statement. Hence, solve the triangle.