

Cosine Rule

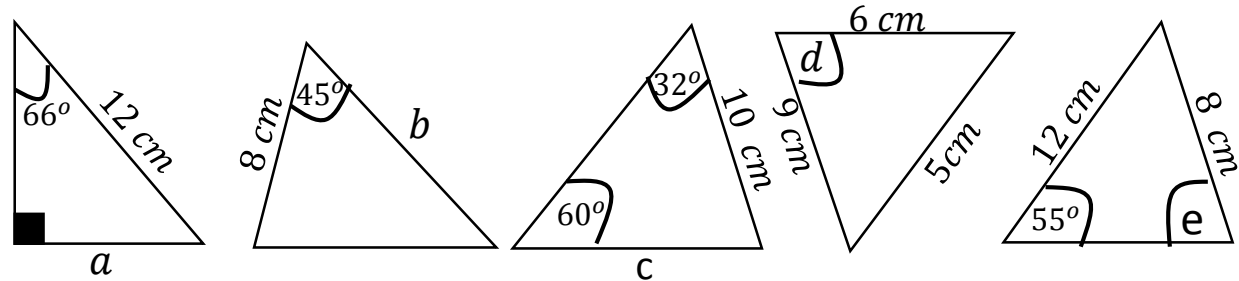
Literacy

Clearly explain to an alien how to accurately label the vertices and edges when using the cosine rule.



Skill 1

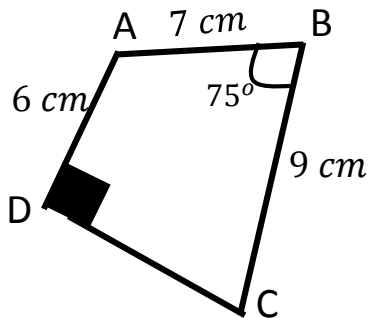
Identify which triangles you would use the Cosine rule to find the missing angle or length and why. (Challenge: If not the Cosine Rule what would you use to find the missing value?)



Stretch 1

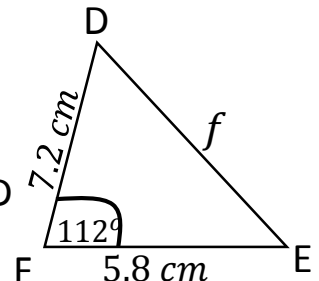
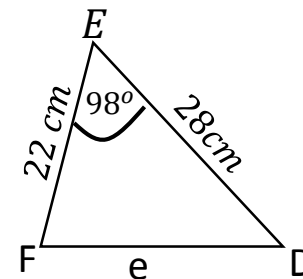
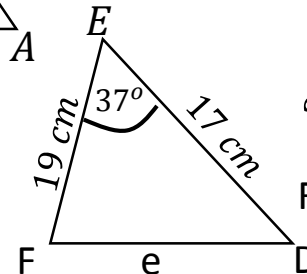
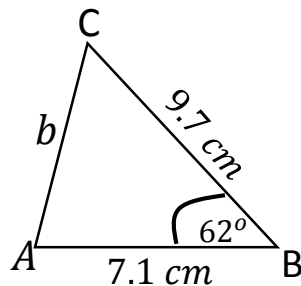
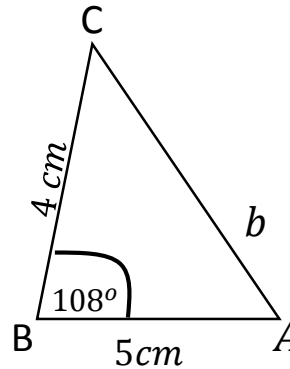
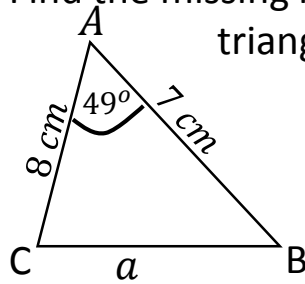
1) Triangle ABC has BC=8cm, AC=7.2cm and Angle ACB=58°. Draw a sketch of the triangle and calculate the length AB.

ABCD is a quadrilateral. AB=7cm, AD=6cm and BC=9cm. Angle ABC=75° and angle ADC=90°. Calculate the perimeter of ABCD. (5 marks)



Skill 2

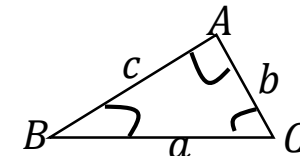
Find the missing lengths of these triangles



Find a missing length

$$a^2 = b^2 + c^2 - 2bc \cos(A)$$

Memory



RAG

Find a missing angle

$$a^2 = b^2 + c^2 - 2bc \cos(A)$$

$$\cos(A) = \frac{b^2 + c^2 - a^2}{2bc}$$

Remember

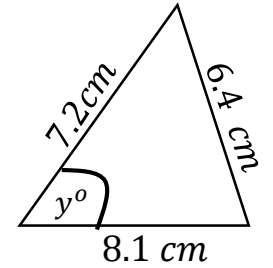
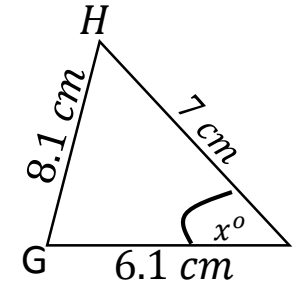
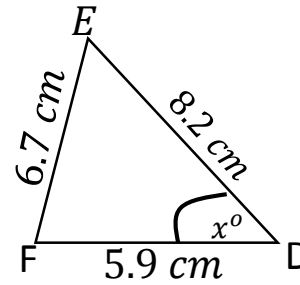
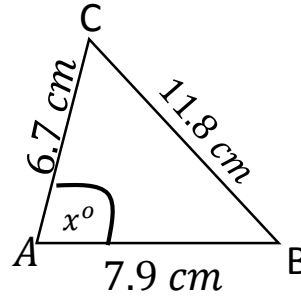
$$\cos(A) = 20cm$$

$$A = \cos^{-1}(20)$$

Memory



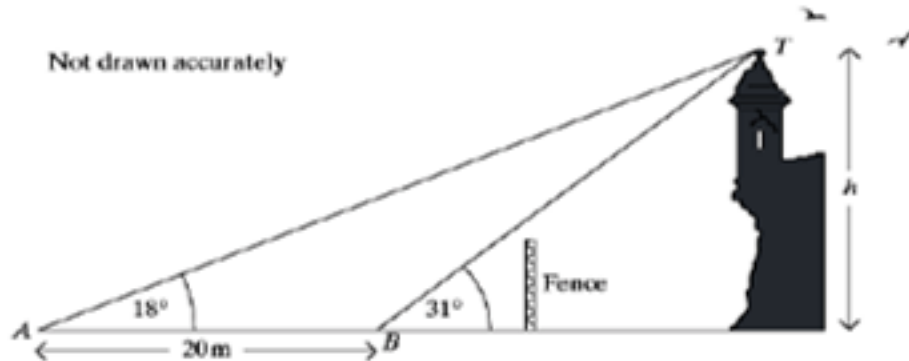
Skill 3



Stretch 3

Examination Question – 6 marks

A ruined tower is fenced off for safety reasons. To find the height of the tower Rashid stands at a point A and measures the angle of elevation as 18° . He then walks 20 metres directly towards to the base of the tower to point B where the angle of elevation is 31° . Calculate the height of the tower.



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Stretch 2

Triangle DEF has $DE=8cm$, $DF=9.1cm$ and $EF=6.7cm$. Draw a sketch of the triangle and calculate the size of the angle DEF.

A plane is 300ft above the ground and 400ft away from the air port. What is the angle of elevation marked x ?

