

Sine Rule

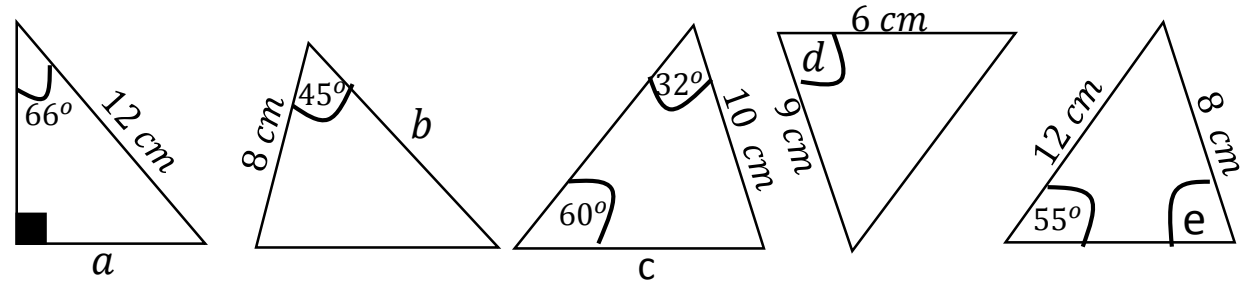
Literacy

Clearly explain to an alien how to accurately use the Sin, Cos and Tan buttons on the calculator and their inverse.



Skill 1

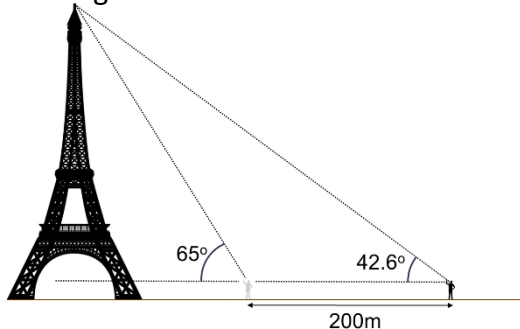
Identify which triangles you would use the sine rule to find the missing angle of length and why. (Challenge: If not the Sine Rule what would you use to find the missing value?)



Stretch 1

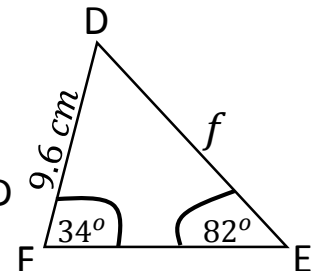
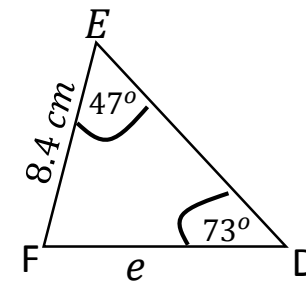
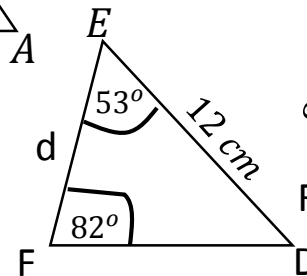
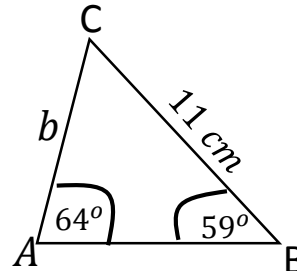
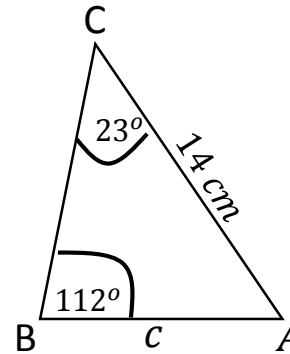
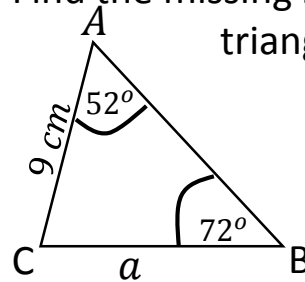
1) Triangle DEF has DE=9cm, Angle DFE=60° and angle DEF=59°. Draw a sketch of the triangle and calculate the length EF.

Bens eyes who are 2m above the ground, measures the angle to the top of the Eiffel tower from two positions along the Av. Pierre Loti, that are 200m apart. Calculate the height of the Eiffel Tower.



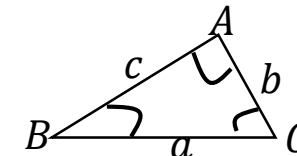
Skill 2

Find the missing lengths of these triangles



Find a missing length

$$\frac{a}{\sin(A)} = \frac{b}{\sin(B)} = \frac{c}{\sin(C)}$$



Memory

RAG

Find a missing angle

$$\frac{\sin(A)}{a} = \frac{\sin(B)}{b} = \frac{\sin(C)}{c}$$

Remember

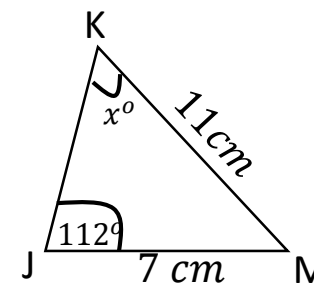
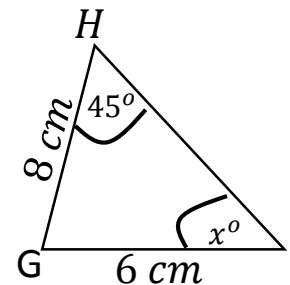
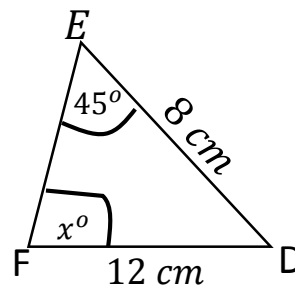
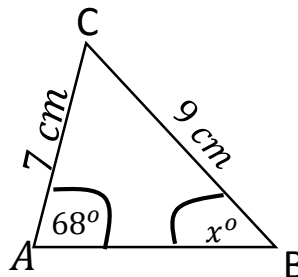
$$\sin(A) = \frac{20}{20}$$

$$A = \sin^{-1}(1)$$

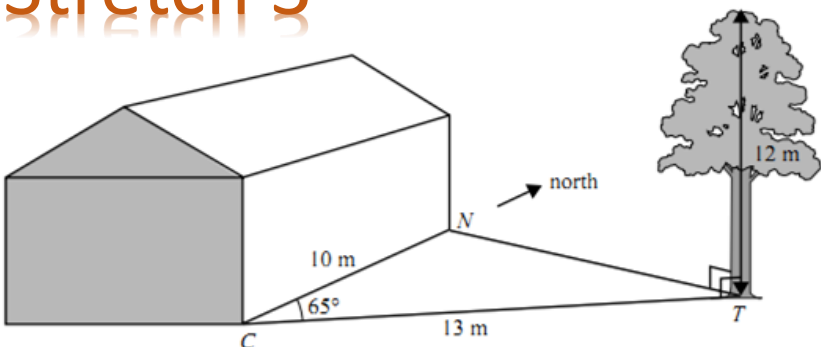
Memory



Skill 3

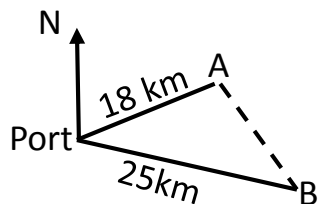


Stretch 3



To reach the top of the tree, what angle would a pair of ladders connect with the tree?

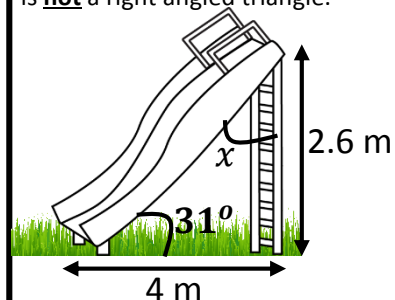
Two ships, A and B, leave port at 13 00 hours. Ship A travels at a constant speed of 18 km per hour on a bearing of 070°. Ship B travels at a constant speed of 25 km per hour on a bearing of 152°. Calculate the distance between A and B at 14 00 hours.



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Stretch 2

Diagram not draw to scale, this is not a right angled triangle.



Calculate the obtuse angle x between the slide and the ladder.

A tent is supported at A by two guy ropes AB and AC. AB is 1.8 m long and AC is 2.1 m long. The angle ABC is 72°. Calculate the angle BAC.

