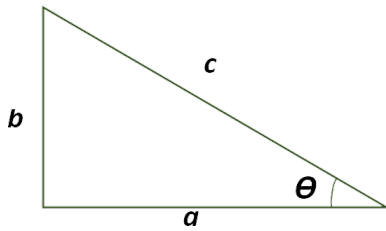


Calculating distance II

This task is about using trigonometry to calculate distances in practical problems.



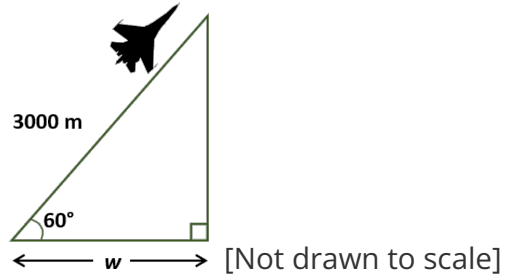
$$\sin \theta = \frac{b}{c}$$

$$\cos \theta = \frac{a}{c}$$

$$\tan \theta = \frac{b}{a}$$

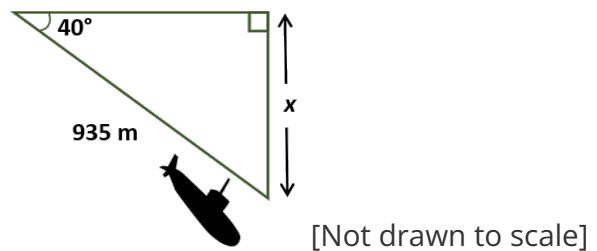
Use the formulae in the box to answer the following questions.

- a) A jet plane climbs at an angle of 60° and travels a distance of 3000 metres.



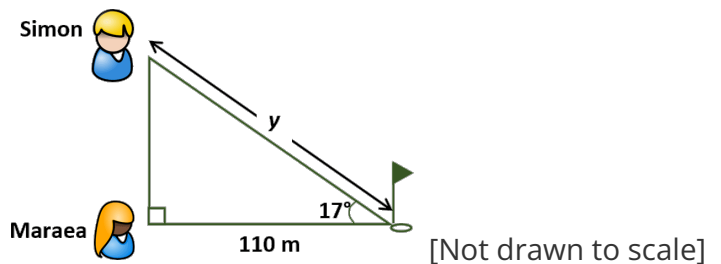
How far has the plane travelled in the horizontal direction, shown by 'w'? metres

- b) A submarine dives at an angle of 40° for 935 metres.



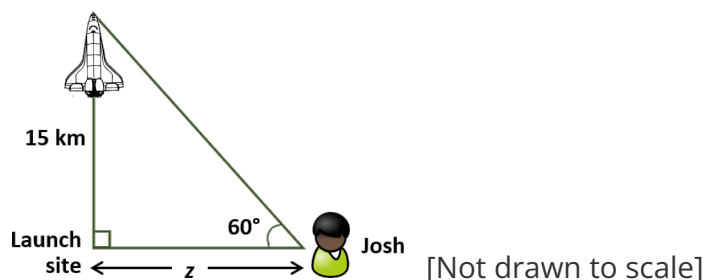
Calculate the depth the submarine will be at after the dive, shown by 'x'. metres

- c) Simon and Maraea are playing golf. Maraea is 110 metres away from the hole. Simon is standing at an angle of 17° from Maraea and the hole.



How far is John from the hole, shown by 'y'? metres

- d) Josh watched a space shuttle launch. When the space shuttle was 15 km above the Earth, there was an angle of 60° between where Josh was standing, the space shuttle, and the launch site.



Calculate how far Josh was from the launch site, shown by 'z'. km