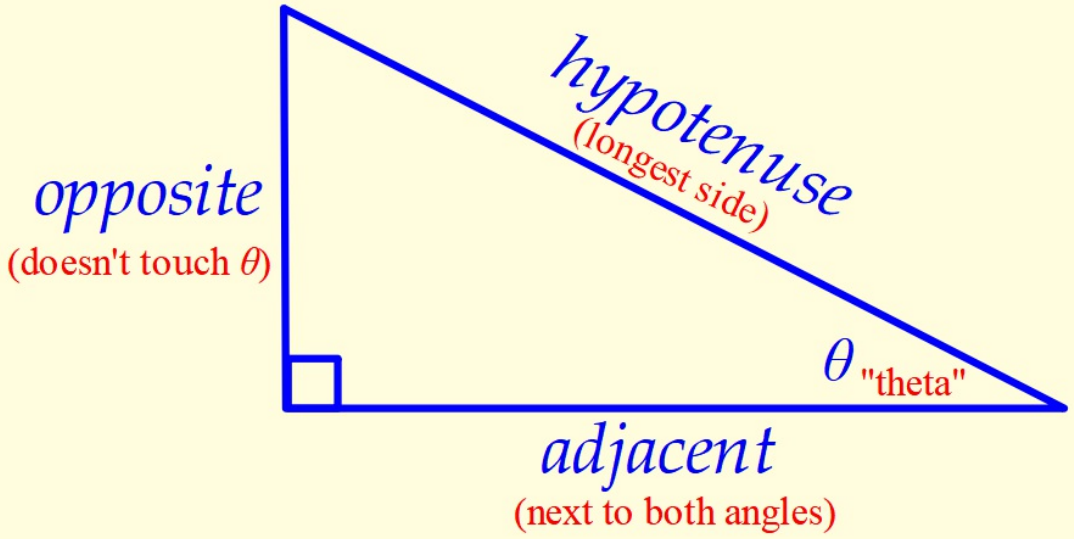
Further Trigonometry

LI: to be able to recall trigonometry strategies in a right angled triangle

To solve right angled triangles using angles, we use SOH CAH TOA. There are three formulae which we select from:

$$\sin\theta = \frac{\text{opposite}}{\text{hypotenuse}} \qquad \cos\theta = \frac{\text{adjacent}}{\text{hypotenuse}} \qquad \tan\theta = \frac{\text{opposite}}{\text{adjacent}}$$

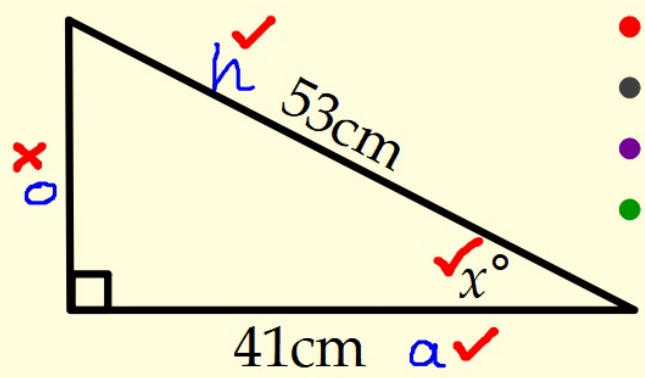
We then substitute values from the triangle into the selected ratio, rearrange our equation and solve.



Further Trigonometry

LI: to be able to recall trigonometry strategies in a right angled triangle

- label triangle
- choose formula
- subsitute
- rearrange/simplify
- solve



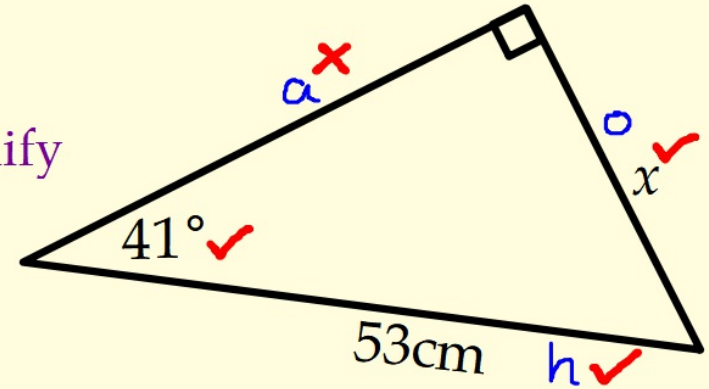
SOH CAH TOA

$\cos\theta = \frac{\text{adjacent}}{\text{hypotenuse}}$

$\cos x^\circ = \frac{41}{53}$ ($\cos^{-1}$) ($\cos^{-1}$)

$x = \cos^{-1}\left(\frac{41}{53}\right)$

$x = 39.3^\circ$



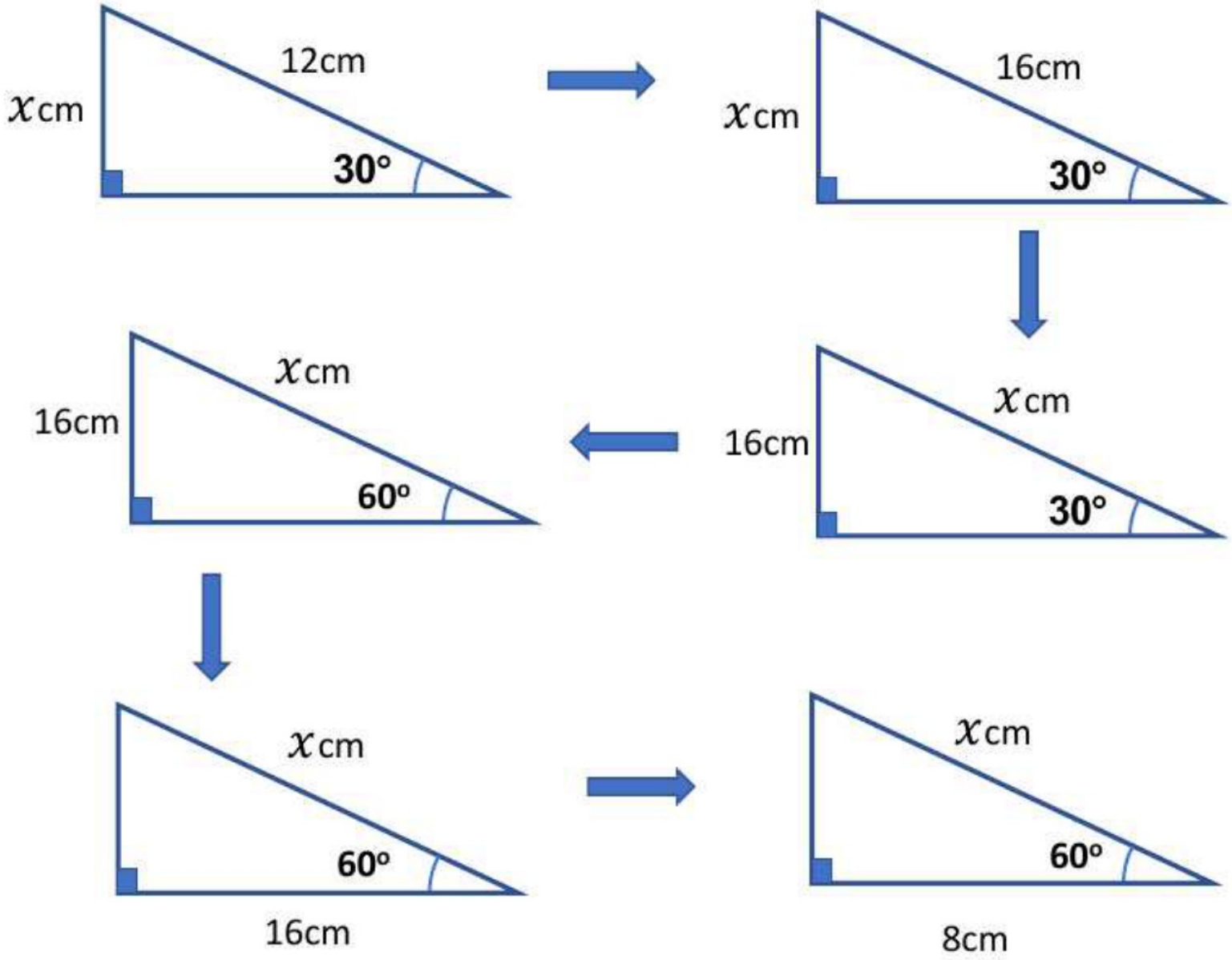
SOH CAH TOA

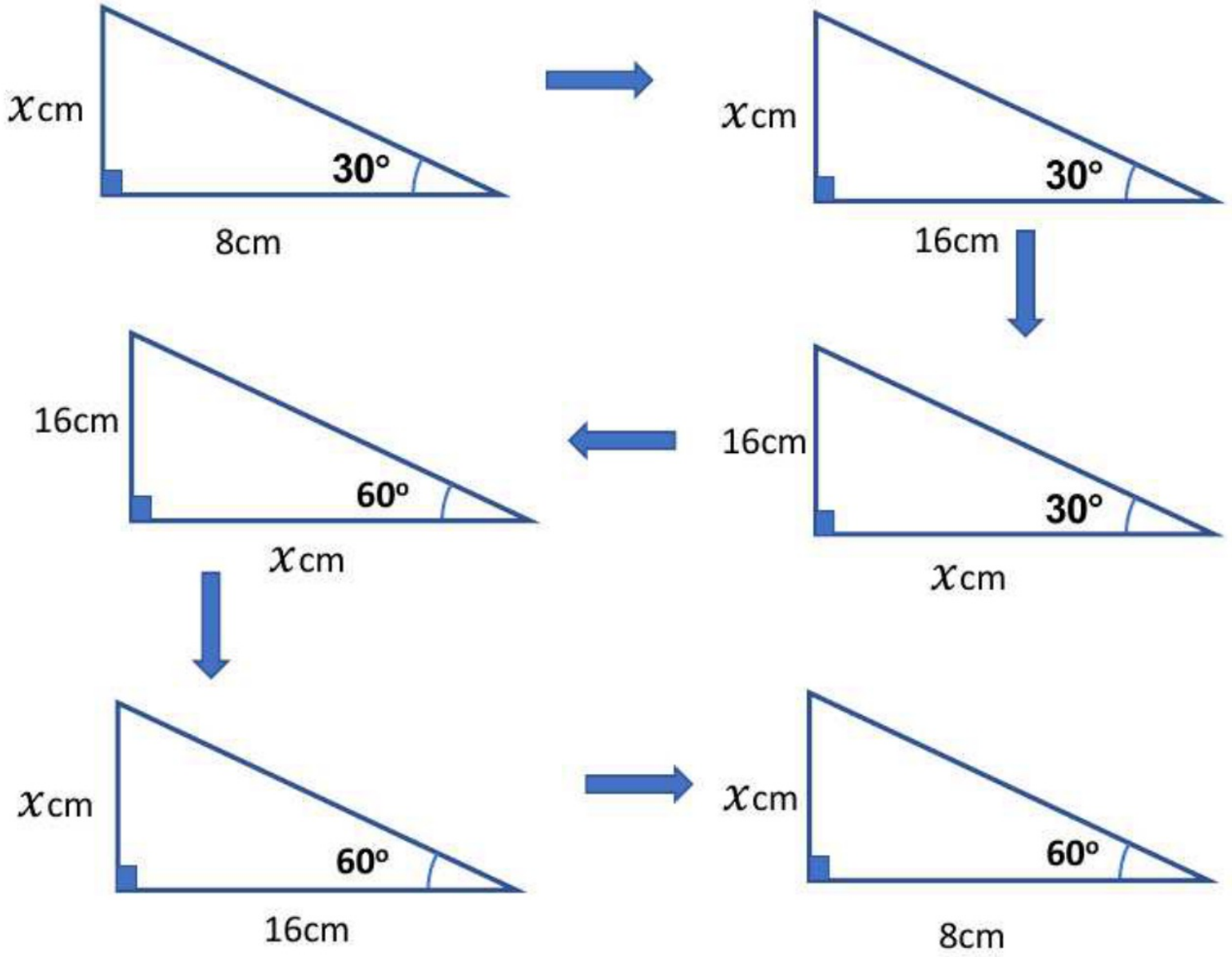
$\sin\theta = \frac{\text{opposite}}{\text{hypotenuse}}$

$\sin 41^\circ = \frac{x}{53}$ (×53) (×53)

$53 \sin 41^\circ = x$

$x = 34.8\text{cm}$


12cm
$x$cm
30°
16cm
$x$cm
30°
$x$cm
16cm
30°
$x$cm
16cm
60°
$x$cm
60°
16cm
$x$cm
60°
8cm

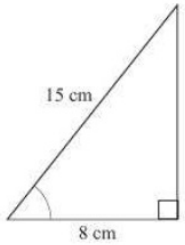


@mrbartonmaths

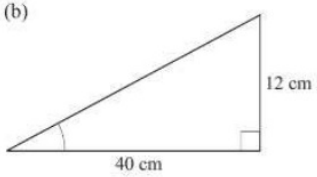
UNIT 15 *Trigonometry* Extra Exercises 15.4

1. Calculate the size of the angle , marked in each triangle. Also calculate the length of the unknown side of each triangle. Give your answers to 3 significant figures.

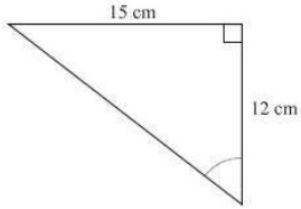
(a)



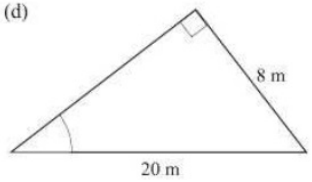
(b)



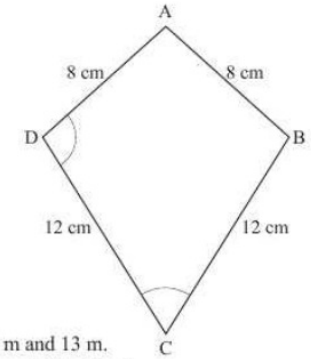
(c)



(d)



2. In the diagram shown, calculate the angles and if the diagonal BD has length 10 cm. Give your answers to 1 decimal place.



3. A right angled triangle has sides of length 5 m, 12 m and 13 m. Calculate, to 1 decimal place, the sizes of the angles of this triangle.

4. An isosceles triangle has sides of length 8 cm, 8 cm and 6 cm. Determine the sizes of the angles in this triangle, to 2 significant figures.

5. Calculate the size of the acute angle between the two diagonals of a rectangle which has sides of length 8 cm and 12 cm. Give your answer to 3 significant figures.

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