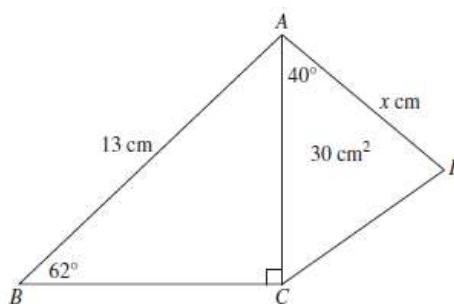


- 2018 30** The diagram shows two triangles.
c Triangle ABC is right-angled, with $AB = 13$ cm and $\angle ABC = 62^\circ$.
 In triangle ACD , $AD = x$ cm and $\angle DAC = 40^\circ$.
 The area of triangle ACD is 30 cm².
 What is the value of x , correct to one decimal place?



NOT TO SCALE

3

$$\frac{AC}{13} = \sin 62^\circ$$

$$\begin{aligned} AC &= 13 \times \sin 62^\circ \\ &= 11.47831871\dots \\ &= 11.4783 \text{ (4 dec pl)} \end{aligned}$$

$$\text{Area of triangle } ACD = \frac{1}{2} \times 11.4783 \times x \times \sin 40^\circ = 30$$

$$3.689060522x = 30$$

$$\begin{aligned} x &= 8.132151754\dots \\ &= 8.1 \text{ (1 dec pl)} \end{aligned}$$

State Mean: 1.18/3

* These solutions have been provided by [projectmaths](http://projectmaths.com.au) and are not supplied or endorsed by NESA.

NESA: Marking Feedback

Students should:

- use the number of lines as an indication of the expected length of the response.

In better responses, students:

- calculated the length AC using the correct trigonometric ratio
- could substitute the length AC , 30 cm² and 40° into the correct formula

Area for students to improve include:

- applying the correct area formula for right and non-right angled triangles