

Learning Objective:	To: Use SOHCAHTOA to find Area of Triangle	Name:	
		Date:	

Do NOW Activity:

- 1 Expand and simplify $(x + 1)(x + 12)$
- 2 Work out 0.5×10^3
- 3 Distance = 15 km, Time = 20 minutes, Speed = ?
- 4 Work out $1\frac{1}{5} \times \frac{5}{6}$
- 5 Express 120 as a product of prime factors

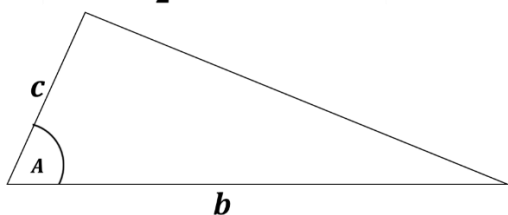
PRIOR KNOWLEDGE CHECK:

1. I can identify and use the correct trigonometric ratio to find lengths and angles.

THE MAIN EVENT

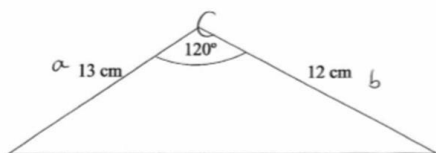
FACTS

$$\text{Area} = \frac{1}{2} \times c \times b \times \sin(A)$$



EXAMPLE #1:

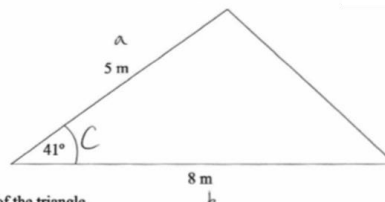
$$\text{Area} = \frac{1}{2} ab \sin C$$



Work out the area of the triangle.
Give your answer to 1 decimal place.

$$\begin{aligned} & \frac{1}{2} (13)(12) \sin(120) \\ & = 67.5 \text{ (1dp)} \end{aligned}$$

$$\text{Area} = \frac{1}{2} ab \sin C$$

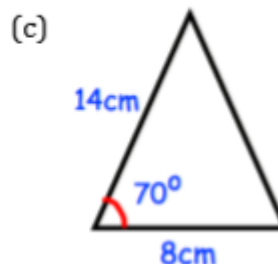
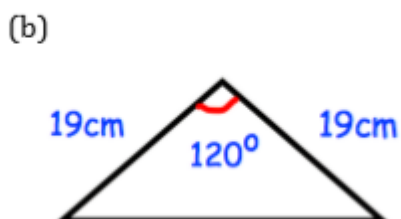
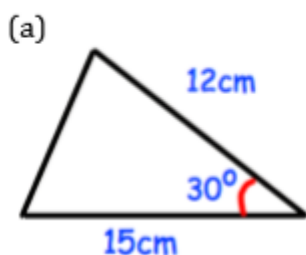


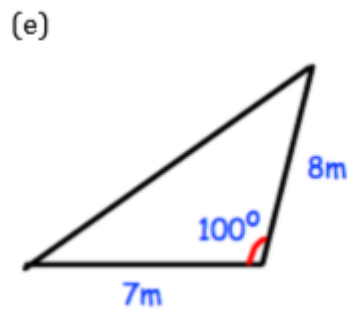
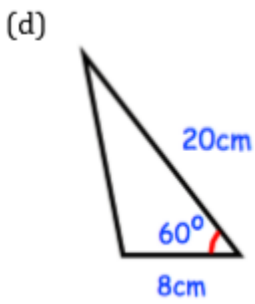
Work out the area of the triangle.
Give your answer to 3 significant figures.

$$\begin{aligned} & \frac{1}{2} (5)(8) \sin(41) \\ & = 13.1 \text{ 3sf} \end{aligned}$$

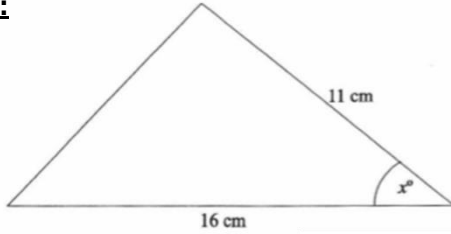
PRACTICE #1:

Question 1: Find the area of each of these triangles.



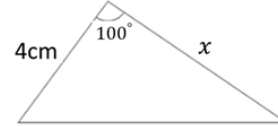


EXAMPLE #2:



The area of the triangle is 70cm^2
Work out the value of x .
Give your answer to 1 decimal place.

$$\begin{aligned} \frac{1}{2}(16)(11)\sin(x) &= 70 \\ 88\sin(x) &= 70 \\ \sin(x) &= \frac{70}{88} \\ x &= \sin^{-1}\left(\frac{70}{88}\right) \\ &= 52.7 \text{ (1dp)} \end{aligned}$$

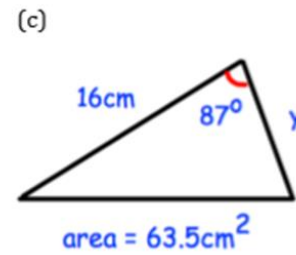
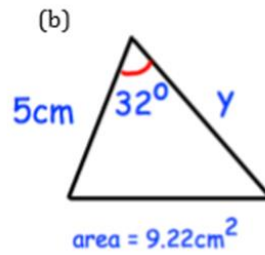
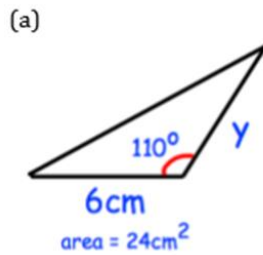


The area of the triangle is 15cm^2 .
Work out the value of x .

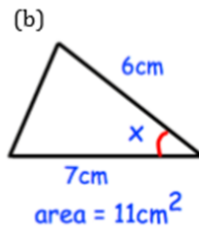
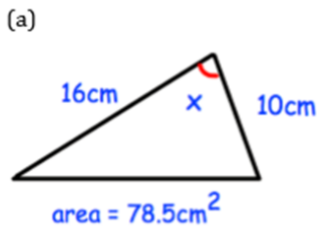
$$\begin{aligned} \frac{1}{2}(x)(4)\sin(100) &= 15 \\ (2x)\sin(100) &= 15 \\ (2x) &= \frac{15}{0.985} \\ (2x) &= 15.23 \\ x &= 7.61\text{cm}^2 \end{aligned}$$

PRACTICE #2:

Question 1: Find the length of the missing side in each of these triangles.
Give each answer to one decimal place.

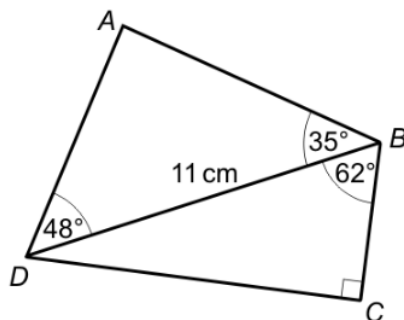


Question 2: Find the size of the missing acute angles below.
Give each answer to one decimal place.



PRACTICE #3:

Work out the area of ABCD.



Give your answer to 1 decimal place.