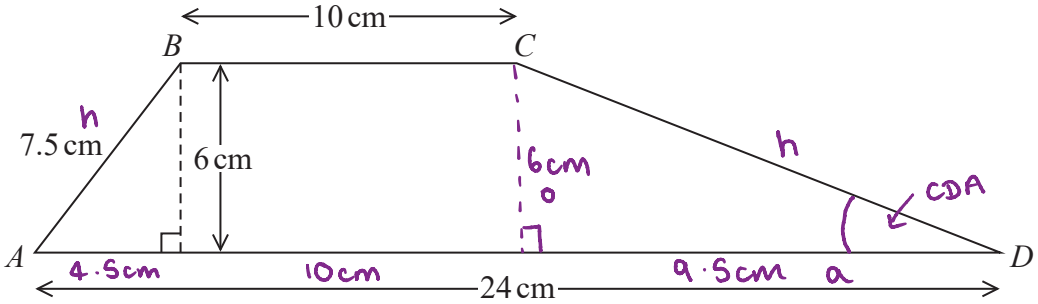
1. *ABCD* is a trapezium.



Work out the size of angle *CDA*.
Give your answer correct to 1 decimal place.

$a^2 + b^2 = c^2$

$a^2 = c^2 - b^2$

$a^2 = 7.5^2 - 6^2$ ✓

$a^2 = 20.25$

$a = 4.5$ ✓

$24 - 10 - 4.5 = 9.5\text{cm}$ ✓

$\tan x = \frac{o}{a}$

$\tan x = \frac{6}{9.5}$

$x = \tan^{-1}\left(\frac{6}{9.5}\right)$ ✓

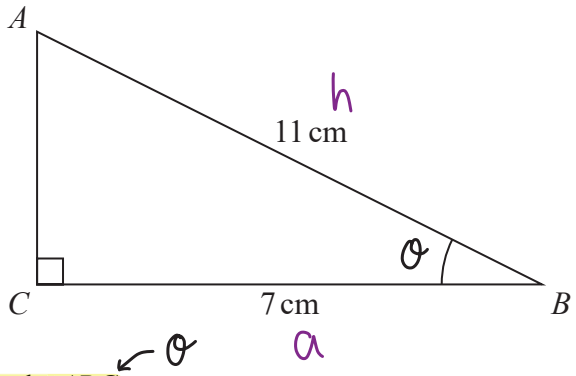
$x = 32.2756\ldots$

$x = 32.3°$

32.3 ✓ °

(Total for Question is 5 marks)

2. *ABC* is a right-angled triangle.



(a) Work out the size of angle *ABC*.
Give your answer correct to 1 decimal place.

SOH CAH TOA — We need to use cos as we has the length of the adjacent and hypotenuse

$\cos\theta = \frac{a}{h} = \frac{7}{11}$

$\theta = \cos^{-1}\left(\frac{7}{11}\right)$

$\theta = 50.4788°$

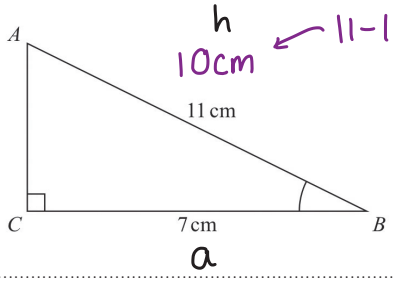
$\theta = 50.5°$ to 1dp

50.5 °

(2)

The length of the side *AB* is reduced by 1 cm.

The length of the side *BC* is still 7 cm.
Angle *ACB* is still 90°



(b) Will the value of cos *ABC* increase or decrease?
You must give a reason for your answer.

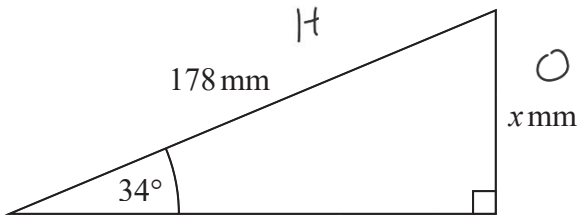
$\cos ABC = \frac{a}{h} = \frac{7}{10}$

$\frac{7}{10}$ is greater than $\frac{7}{11}$, so cos ABC has increased

(1)

(Total for Question is 3 marks)

3.



SOH
CAH
TOA

Work out the value of x.

Give your answer correct to 1 decimal place.

$\sin\theta = \frac{O}{H} \rightarrow O = H \times \sin\theta$ ✓1

$= 178\text{mm} \times \sin 34^\circ$

$= 99.536...\text{ mm}$

$= 99.5\text{mm}$

99.5 mm ✓2

(Total for Question is 2 marks)