JP Maths Revision

Attempt the paper before watching the solutions!

https://www.youtube.com/@JPMathsRevision

FOUNDATION / HIGHER TIER

SOHCAHTOA

INSTRUCTIONS

- Use **black ink** or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided – *there may be more space than you need.*
- You must **show all your working.**
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- If your calculator does not have a π button, take the value of π to be 3.142 unless the question instructs otherwise.

INFORMATION

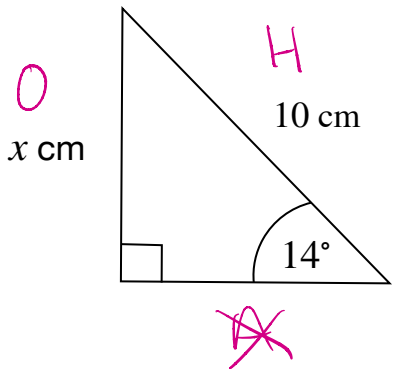
- The marks for **each** question are shown in brackets– *use this as a guide as to how much time to spend on each question.*

ADVICE

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

You've got this! ♡

1. Find the size of the side marked x.



$\sin(14) = \frac{x}{10}$

$x = 10 \times \sin(14)$

$= 2.419$

2.42 cm

.....

(Total for Question 1 is 2 marks)

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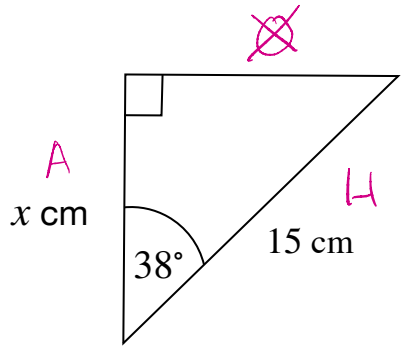
2. Find the size of the side marked x.



$\cos(38) = \frac{x}{15}$

$x = 15 \times \cos(38)$

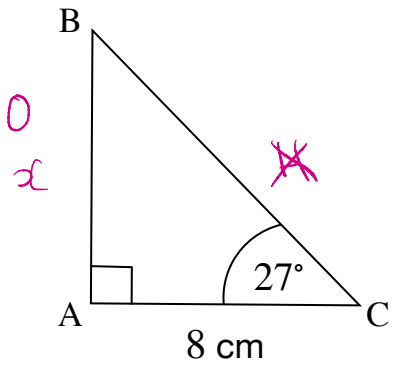
$= 11.82$

11.8 cm

.....

(Total for Question 2 is 2 marks)

3. Find the size of the side AB.



O
x
A

$\tan(27) = \frac{x}{8}$

$x = 8 \times \tan(27)$

$= 4.076$

$= 4.08$

4.08 cm

(Total for Question 3 is 2 marks)

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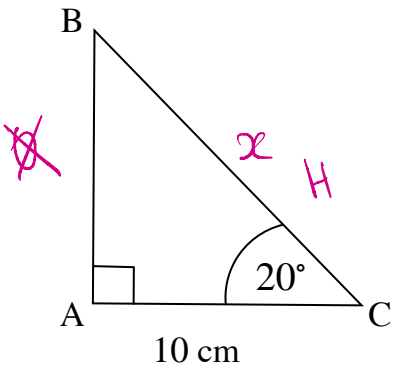
4. Find the size of the side BC.



x
H
A

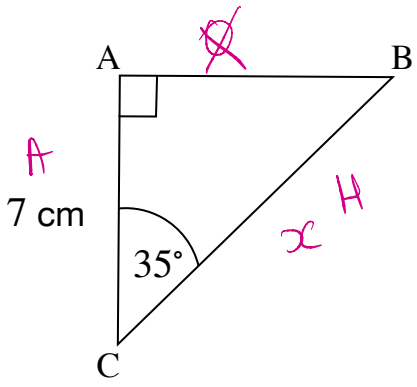
$\cos(20) = \frac{10}{x}$

$x = \frac{10}{\cos(20)} = 10.6$

10.6 cm

(Total for Question 4 is 2 marks)

5. Find the size of the side marked BC.



$\cos(35) = \frac{7}{x}$

$x = \frac{7}{\cos(35)}$

$= 8.55$

8.55 cm

(Total for Question 5 is 2 marks)

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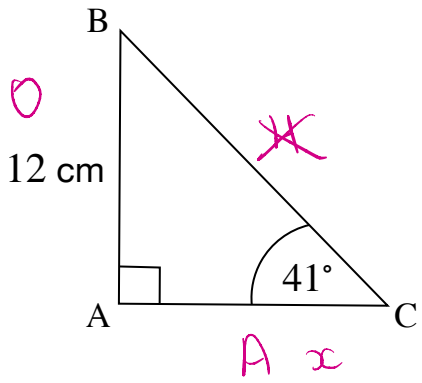
6. Find the size of the side AC.



$\tan(41) = \frac{12}{x}$

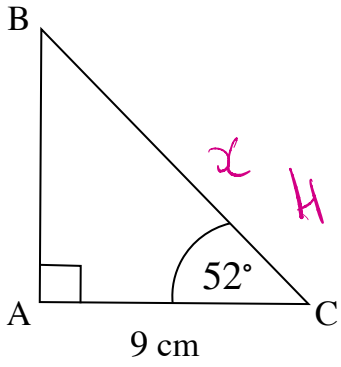
$x = \frac{12}{\tan(41)}$

$= 13.8$

13.8 cm

(Total for Question 6 is 2 marks)

7. Find the size of the side BC.



$\cos(52) = \frac{9}{x}$

$x = \frac{9}{\cos(52)} = 14.6$

14.6 cm

.....

(Total for Question 7 is 2 marks)

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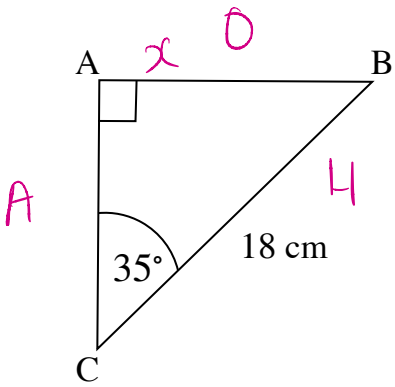
8. Find the size of the size AB.



$\sin(35) = \frac{x}{18}$

$x = 18\sin(35)$

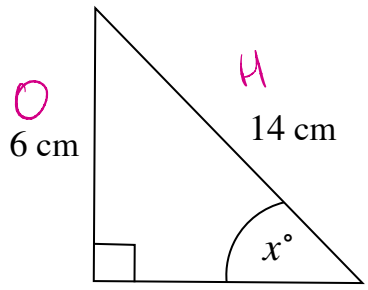
$= 10.3$

10.3 cm

.....

(Total for Question 8 is 2 marks)

9. In a right angled triangle, find the size of the angle marked $x°$.



$\sin(x) = \frac{6}{14}$

$x = \sin^{-1}\left(\frac{6}{14}\right)$

$= 25.4°$

25.4°

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(Total for Question 9 is 2 marks)

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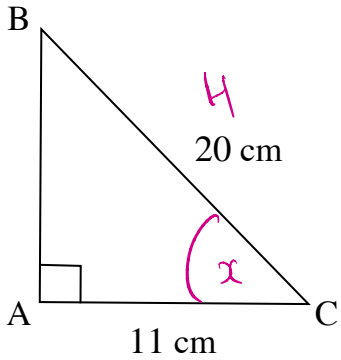
10. In a right angled triangle, find the size of the angle ACB.



$\cos(x) = \frac{11}{20}$

$x = \cos^{-1}\left(\frac{11}{20}\right)$

$= 56.6$

56.6°

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(Total for Question 10 is 2 marks)

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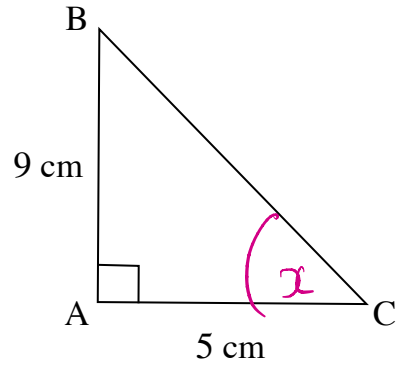
11. In a right angled triangle, find the size of the angle ACB



$\tan(x) = \frac{9}{5}$

$x = \tan^{-1}\left(\frac{9}{5}\right)$

$= 60.9°$

60.9°

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(Total for Question 11 is 2 marks)

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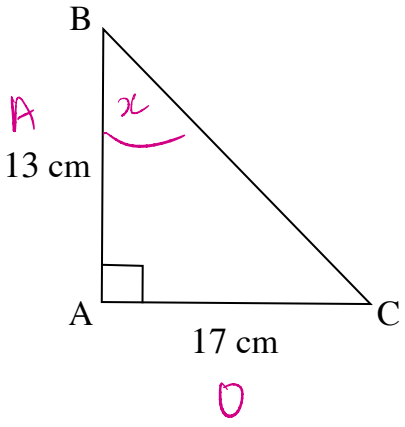
12. In a right angled triangle, find the size of the angle ABC.



0

$\tan(x) = \frac{17}{13}$

$x = \tan^{-1}\left(\frac{17}{13}\right)$

$= 52.6$

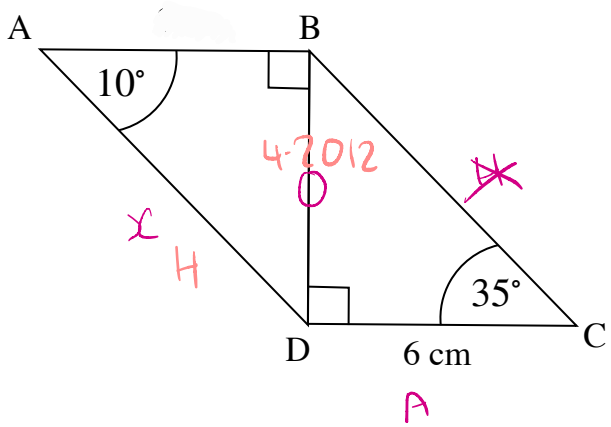
52.6°

.....

(Total for Question 12 is 2 marks)

13. A shape is made from two right-angled triangles joined together.

Find the total length AD.



$\tan(35) = \frac{BD}{6}$

$BD = 6 \times \tan 35$

$= 4.2012$

$\sin(10) = \frac{4.2012}{x}$

$x = \frac{4.2012}{\sin(10)} = 24.2$

24.2 cm

(Total for Question 13 is 3 marks)

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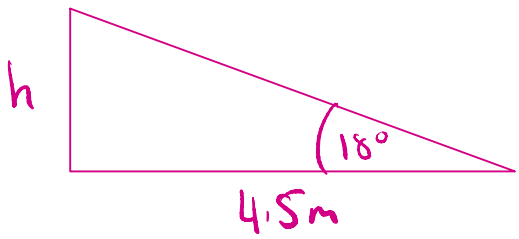
14. A wheelchair ramp is 4.5 m long.

The angle between the ramp and the ground is 18°

Calculate the vertical height reached by the ramp.



$\tan 18 = \frac{h}{4.5}$

$h = 4.5 \tan 18$

$= 1.46$

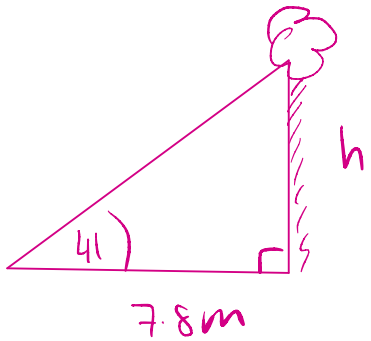
1.46 m

(Total for Question 14 is 3 marks)

15. A tree casts a shadow 7.8 m long.

The angle between the ground and the line from the tip of the shadow to the top of the tree is 41°.

Calculate the height of the tree.



$\tan 41 = \frac{h}{7.8}$

$h = 7.8 \tan 41$

$= 6.78$

6.78 m

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(Total for Question 15 is 3 marks)

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16. A ladder is leaning against a wall.

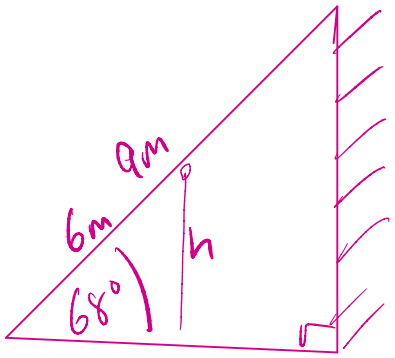
The ladder is 9 m long.

The angle between the ladder and the ground is 68°

A painter climbs to a point that is $\frac{2}{3}$ of the way up the ladder.

How high above the ground is the painter?

$\frac{2}{3}$ of $9 = 6$



$\sin(68) = \frac{h}{6}$

$h = 6 \sin(68) = 5.56$

5.56 m

.....

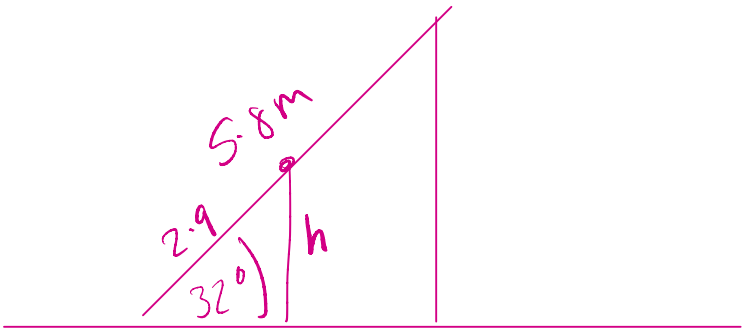
(Total for Question 16 is 3 marks)

17. A playground slide is 5.8 m long.

The angle between the slide and the ground is 32°.

A child climbs halfway up the slide.

Calculate how high above the ground the child is.



$\sin(32) = \frac{h}{2.9}$

$h = 2.9 \sin(32)$

$= 1.54$

1.54 m

.....

(Total for Question 17 is 3 marks)

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18. A rope is attached to the top of a vertical post.

The rope is 12 m long.

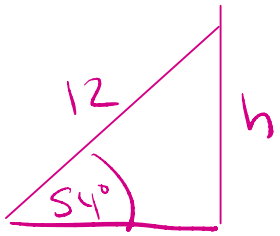
It makes an angle of 54° with the ground.

Calculate the height of the post

$\sin(54) = \frac{h}{12}$

$h = 12 \sin 54$

$= 9.71$



9.71 m

.....

(Total for Question 18 is 3 marks)