Name ANSWERS | Class

MATHS TEACHER HUB

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Trigonometry

(9 – 1) Topic booklet

Foundation

These questions have been collated from previous years GCSE Mathematics papers.

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser.

Total Marks

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.*
- Diagrams are NOT accurately drawn, unless otherwise indicated.
- You must **show all your working out.**
- If the question is a **1F** question you are not allowed to use a calculator.
- If the question is a **2F** or a **3F** question, you may use a calculator to help you answer.

Information

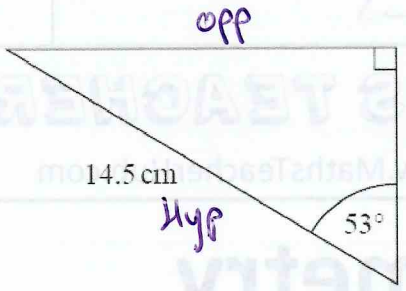
- The marks for **each** question are shown in brackets
  – *use this as a guide as to how much time to spend on each question.*

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.

Answer ALL questions
Write your answers in the space provided.
You must write down all the stages in your working.

22



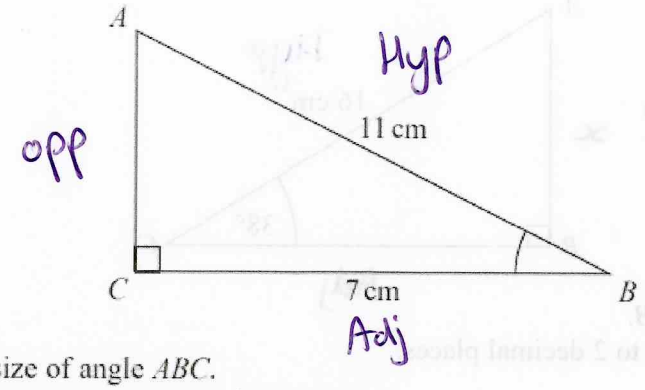
Work out the value of x.
Give your answer correct to 3 significant figures.

$\cos(53) \times 14.5 = 8.726317836$

$x =$ 8.73cm

(Total for Question 22 is 2 marks)

23 ABC is a right-angled triangle.



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

$\cos^{-1}\left(\frac{7}{11}\right) = 50.47880364$

50.1 °

(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.

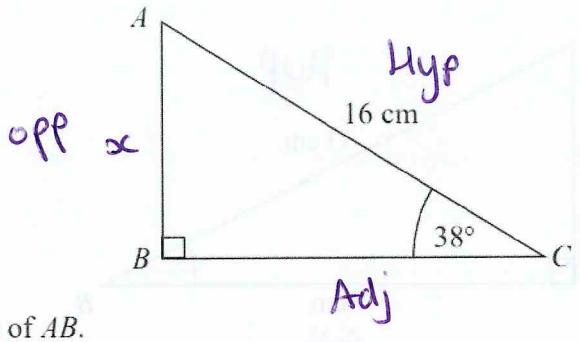
$\cos\theta = \frac{A}{H}$ $\quad \frac{7}{11} < \frac{7}{10}$

So $\cos\theta$ will increase.

(1)

(Total for Question 23 is 3 marks)

24 ABC is a right-angled triangle.



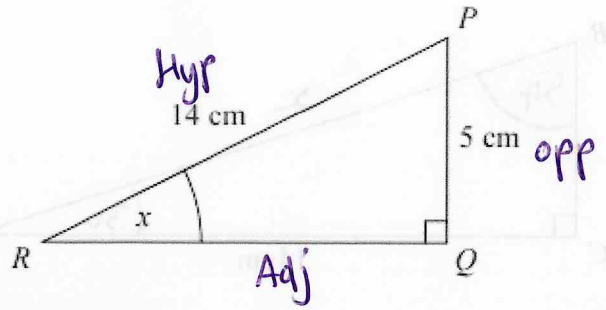
Calculate the length of AB.
Give your answer correct to 2 decimal places.

$\sin(38) \times 16 = 9.850583605$

9.85 cm

(Total for Question 24 is 2 marks)

24 PQR is a right-angled triangle.



Work out the size of the angle marked x.
Give your answer correct to 1 decimal place.

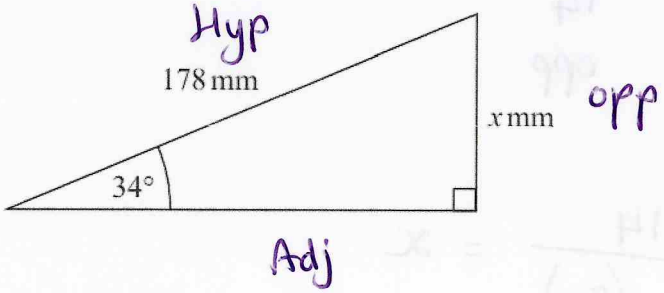
$\sin^{-1}\left(\frac{5}{14}\right) = 20.92483243$

20.9 °

Sample 1 – Paper 2F

(Total for Question 24 is 2 marks)

25



Work out the value of x.
Give your answer correct to 1 decimal place.

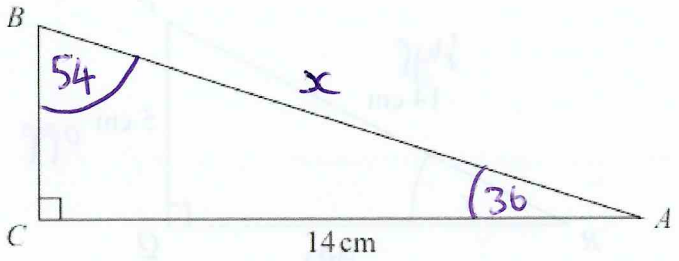
$\sin(34) \times 178 = 99.53633682$

99.5 mm

May 2020 – Paper 2F

(Total for Question 25 is 2 marks)

25 ABC is a right-angled triangle.



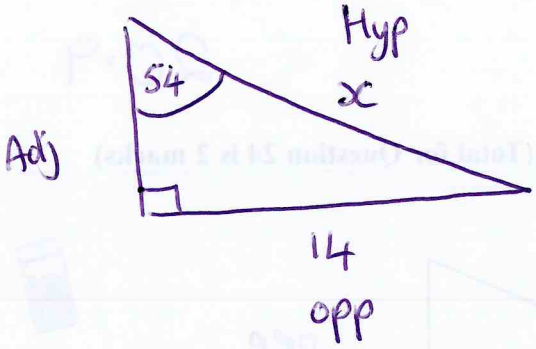
$AC = 14$ cm.
Angle $C = 90°$

size of angle B : size of angle $A = 3 : 2$

Work out the length of AB.
Give your answer correct to 3 significant figures.

$\frac{90}{5} = 18$

B : A
3 : 2 (×18)
54 : 36



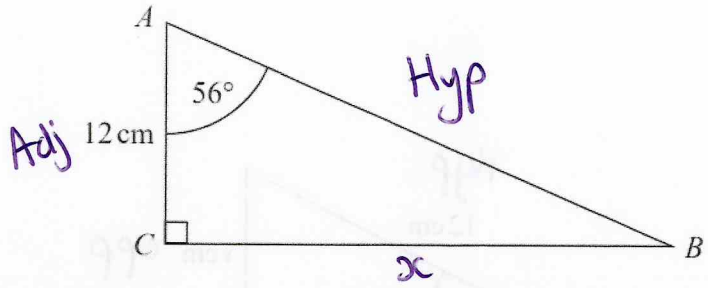
$$\frac{14}{\sin(54)} = x$$

$$17.304951 = x$$

17.3 cm

(Total for Question 25 is 4 marks)

26 ABC is a right-angled triangle.



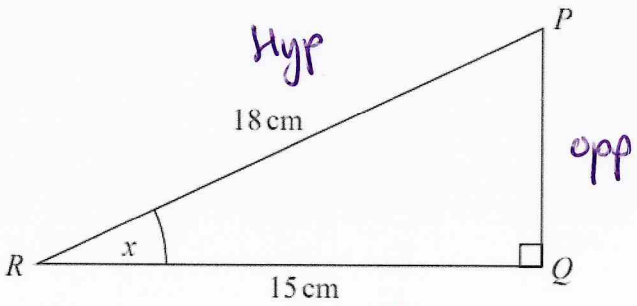
(a) Work out the length of BC.
Give your answer correct to 1 decimal place.

Tan(56) × 12 = 17.79073163

17.8 cm

(2)

PQR is a right-angled triangle.



(b) Work out the size of the angle marked x.
Give your answer correct to 1 decimal place.

$\cos^{-1}\left(\frac{15}{18}\right) = 33.55730976$

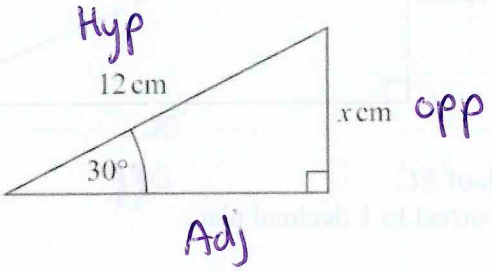
33.6 °

(2)

(Total for Question 26 is 4 marks)

26 (a) Write down the exact value of $\cos 30°$

(b)



Given that $\sin 30° = 0.5$,
work out the value of x.

$\sin(30) \times 12 = x$

$0.5 \times 12 = x$

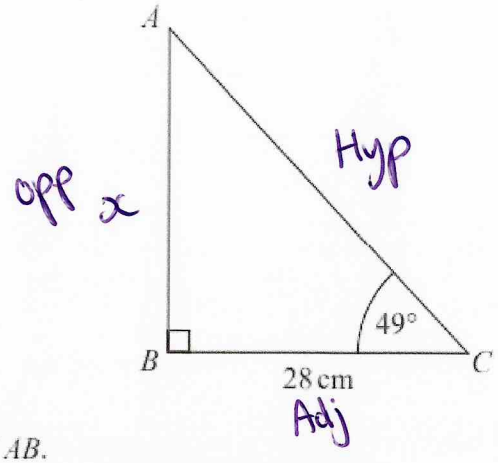
$6 = x$

$x = 6$ cm

(2)

(Total for Question 26 is 3 marks)

29 ABC is a right-angled triangle.



Calculate the length of AB.
Give your answer correct to 3 significant figures.

$\tan(49) \times 28 = 32.2103154$

32.2 cm

November 2023 – Paper 2F

(Total for Question 29 is 2 marks)

30 Write down the exact value of $\cos 60°$

0.5

June 2023 – Paper 1F

(Total for Question 30 is 1 mark)