



JP Maths

Revision



Attempt the paper
before watching the
solutions!

[https://www.youtube.com/
@JPMathsRevision](https://www.youtube.com/@JPMathsRevision)



FOUNDATION / HIGHER TIER

Forming and Solving Equations



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. Mia is 4 years older than Ben.
 Noah is twice as old as Ben
 The total of their ages is 40.
 How old is Mia?

$$\begin{array}{r} M : x + 4 \\ B : x \\ N : 2x \\ \hline \end{array}$$

$$M = 9 + 4 = 13$$

$$4x + 4 = 40$$

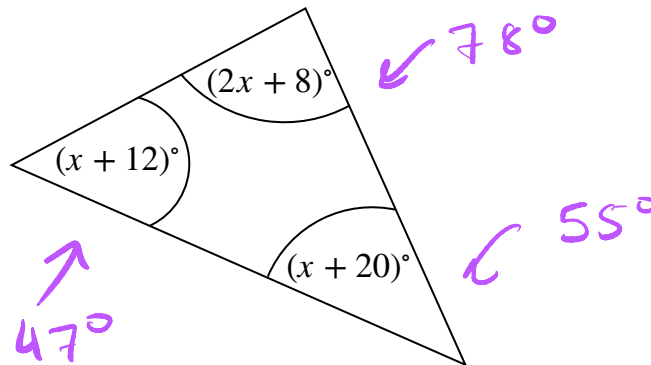
$$4x = 36$$

$$x = 9$$

13

(Total for Question 1 is 3 marks)

2. Below is a triangle.



Find the size of the largest angle.

$$x + 12 + 2x + 8 + x + 20 = 180$$

$$4x + 40 = 180$$

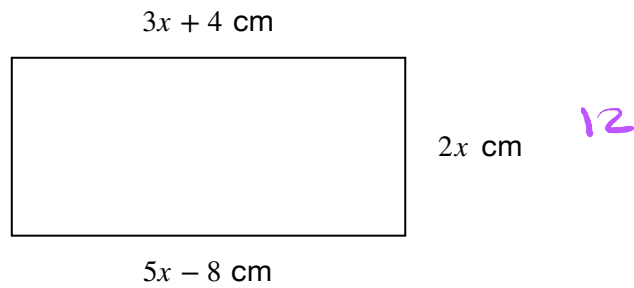
$$4x = 140$$

$$x = \frac{140}{4} = \frac{70}{2} = 35$$

78°

(Total for Question 2 is 3 marks)

3. Below is a rectangle.



Work out the area.

$$3x + 4 = 5x - 8$$

$$12 = 2x$$

$$x = 6$$

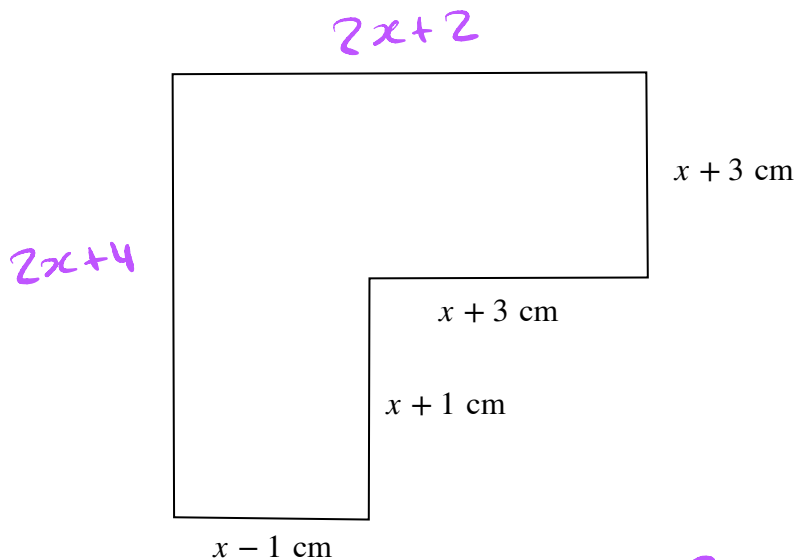
$$22 \times 12 = 264$$

$$264 \text{ cm}^2$$

(Total for Question 3 is 4 marks)

4. The perimeter of the below shape is 52 cm.

Work out the value of x .



$$2x + 2 + 2x + 4 + x - 1 + x + 1 + x + 3 + x + 3 = 52$$

$$8x + 12 = 52$$

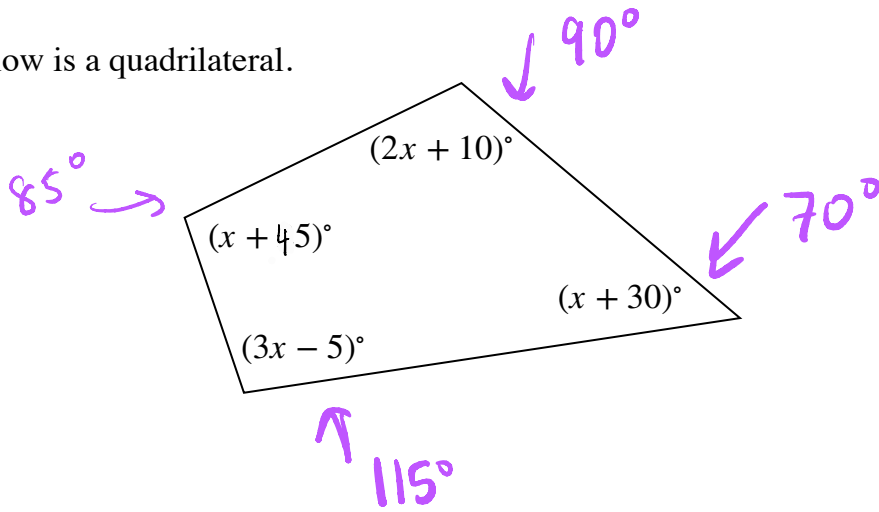
$$8x = 40$$

$$x = 5$$

$$x = 5$$

(Total for Question 4 is 3 marks)

5. Below is a quadrilateral.



Work out the size of the smallest angle.

$$2x + 10 + x + 30 + 3x - 5 + x + 45 = 360$$

$$7x + 80 = 360$$

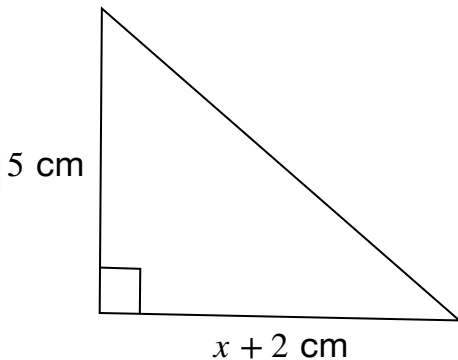
$$7x = 280 \Rightarrow x = 40$$

70°

(Total for Question 5 is 4 marks)

6. The area of the below triangle is 42 cm^2 .

Work out the value of x .



$$A = \frac{bh}{2}$$

$$42 = \frac{5(x+2)}{2}$$

$$84 = 5(x+2)$$

$$16.8 = x + 2$$

$$x = 14.8$$

$x = 14.8$

(Total for Question 6 is 4 marks)

7. Three consecutive integers add up to 72.

Form and solve an equation to find the numbers.

$$x + x + 1 + x + 2 = 72$$

$$3x + 3 = 72$$

$$3x = 69$$

$$x = 23$$

.....
23, 24, 25

(Total for Question 7 is 4 marks)

8. A taxi company charges a £3 fixed fee plus £2 per mile.

A journey costs £19.

Form and solve an equation to find how many miles were travelled.

$$3 + 2m = 19$$

$$2m = 16$$

$$m = 8$$

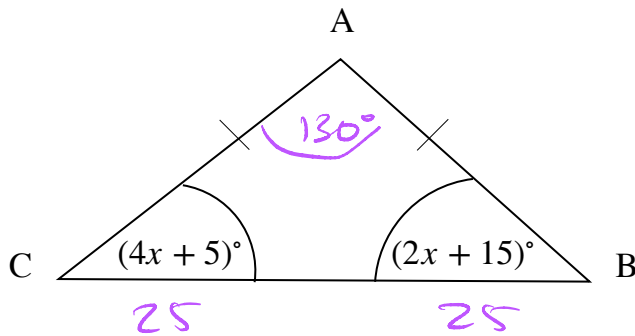
.....
8

(Total for Question 8 is 3 marks)

9. ABC is an isosceles triangle.

$$AC = AB$$

Find the size of angle CAB



$$4x + 5 = 2x + 15$$

$$2x = 10$$

$$x = 5$$

.....
 130°

(Total for Question 9 is 4 marks)

10. Sam buys 4 notebooks costing $\pounds x$ each and a calculator costing $\pounds 12$.

He spends $\pounds 36$ altogether.

Form and solve an equation to find the cost of one notebook.

$$4x + 12 = 36$$

$$4x = 24$$

$$x = 6$$

.....
 $\pounds 6$

(Total for Question 10 is 3 marks)

11. A balance scale is level.

One side has 3 identical boxes and a 5 kg bag.

The other side has 2 identical boxes and an 11 kg bag.

Each box weighs x kg.

Find the value of x .

$$3x + 5 = 2x + 11$$

$$x = 6$$

$$x = 6$$

.....
(Total for Question 11 is 4 marks)

12. A polygon has 8 sides.

Each interior angle is 15° bigger than the previous one.

Find the size of the largest angle.

$$(8-2) \times 180 = 1080$$

$$\underline{x} + \underline{x+15} + \underline{x+30} + \underline{x+45} + \underline{x+60} + \underline{x+75} + \underline{x+90} + \underline{x+105} = 1080$$

$$8x + 420 = 1080$$

$$8x = 660$$

$$x = 82.5$$

$$82.5 + 105 \\ = 187.5$$

$$187.5^\circ$$

.....
(Total for Question 12 is 5 marks)
