

Name: _____

GCSE (1 – 9)

Forming and Solving Equations

Instructions

- Use **black** ink or ball-point pen.
- 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.**

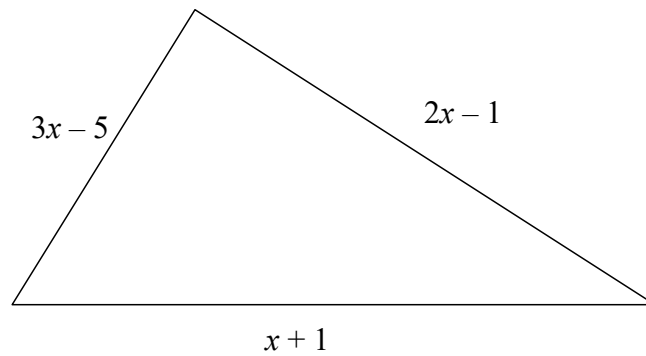
Information

- 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

- 1 The lengths, in cm, of the sides of a triangle are $3x - 5$, $2x - 1$ and $x + 1$



- (a) Write down an expression, in terms of x , for the perimeter of the triangle.

..... cm
(2)

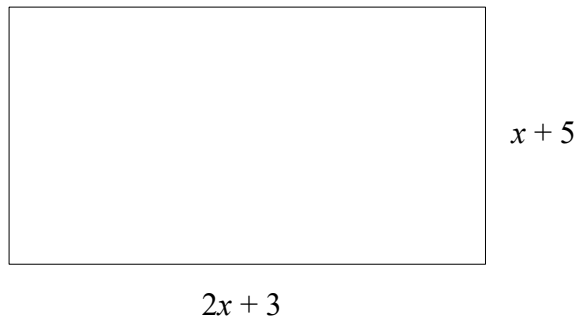
The perimeter of the triangle is 31 cm.

- (b) Work out the value of x .

.....
(2)

(Total for question 1 is 4 marks)

2 A rectangle has a length of $(2x + 3)$ cm and a width of $(x + 5)$ cm.



(a) Find an expression for the perimeter of the rectangle.

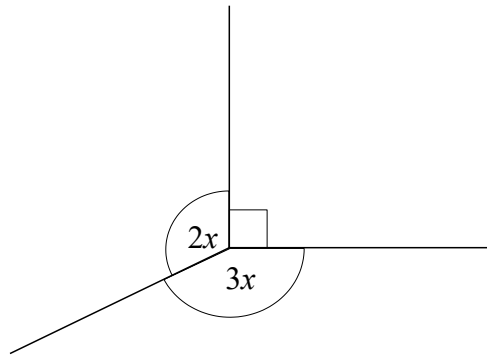
..... cm
(2)

(b) Given the rectangle has a perimeter of 43 cm find the value of x .

.....
(2)

(Total for question 2 is 4 marks)

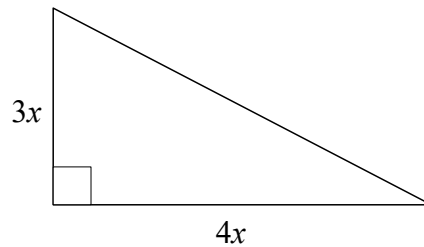
3



Find the value of x .

(Total for question 3 is 3 marks)

4 The diagram shows a right angled triangle.

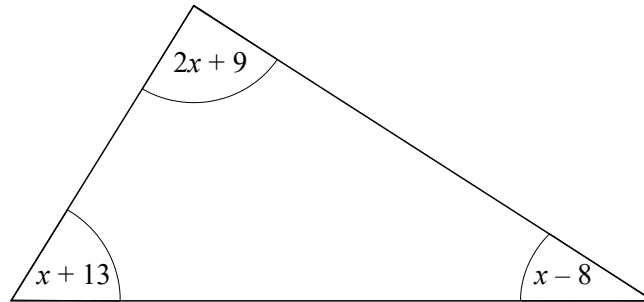


The area of the triangle is 294 cm^2

Work out the value of x .

(Total for question 4 is 3 marks)

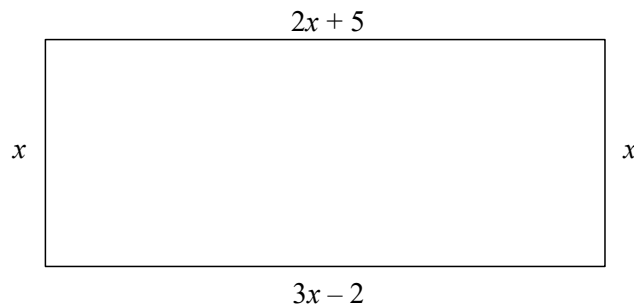
- 5 The sizes of the angles, in degrees, of a triangle are $2x + 9$, $x + 13$ and $x - 8$



Work out the value of x .

(Total for question 5 is 3 marks)

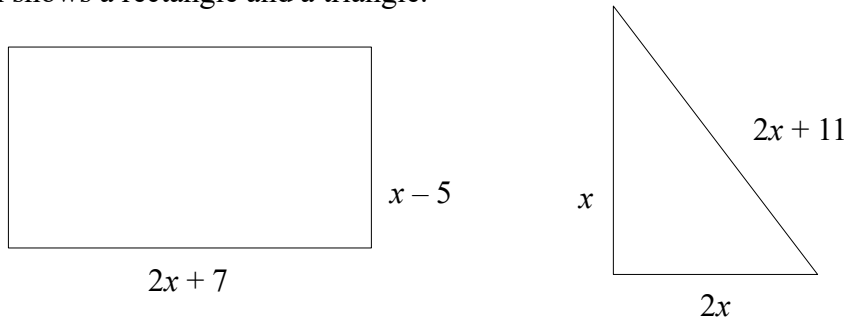
- 6 The diagram shows a rectangle.
All measurements are in centimetres.



Find the perimeter of the rectangle.

..... cm
(Total for question 6 is 3 marks)

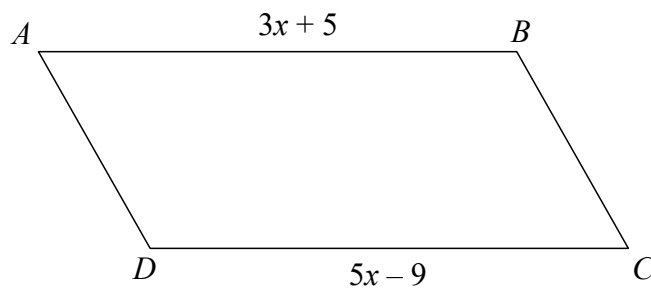
7 The diagram shows a rectangle and a triangle.



The perimeter of the rectangle is equal to the perimeter of the triangle.
Find the value of x .

(Total for question 7 is 3 marks)

8

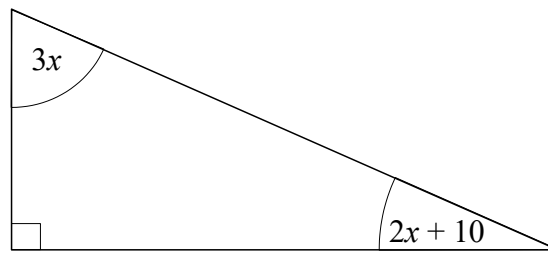


$ABCD$ is a parallelogram
All measurements are in centimetres.
The perpendicular height of the parallelogram is 5 cm.

Find the area of $ABCD$

(Total for question 8 is 4 marks)

- 9 The diagram shows a right-angled triangle.
All of the angles are in degrees.



Find the value of size of the smallest angle in the triangle.

.....
(Total for question 9 is 3 marks)

- 10 Adam has some marbles.
Bradley has twice as many marbles as Adam.
Chris has 5 more marbles than Bradley.

In total they have 55 marbles.

How many marbles does Chris have?

.....
(Total for question 10 is 3 marks)

- 11** The size of the largest angle in a triangle is three times the size of the smallest angle.
The other angle is 35° more than the smallest angle.

Work out, in degrees, the size of each angle in the triangle.
You must show your working.

..... ° , ° , °

(Total for question 11 is 5 marks)

- 12** Lucy is three times as old as Alex.
Lucy is 7 years older than Megan.
The sum of their ages is 126.

Find the ratio of Alex's age to Lucy's age to Megan's age.

.....

(Total for question 12 is 4 marks)