Bishops Online Tutoring

Education Consultancy

Edexcel GCSE Mathematics

ALGEBRA: FORMING & SOLVING EQUATIONS

Materials Required:

- Pen
- HB Pencil
- Ruler (in centimetres and millimetres)
- Protractor
- Compass

Instructions:

- Use a black ink pen to answer all questions
- Fill your name in the section below
- Answer the questions in the spaces provided
- Show your working out for all answers

Information:

- The marks allocated for each question are displayed within brackets – utilise this information to gauge the appropriate amount of time to dedicate to each question
- Questions marked with an asterisk (*) will assess your written communication; be careful of spelling, punctuation and grammar with these questions

Advice:

- Carefully read the question before attempting to answer it
- Be vary of time and try to answer every question
- If you have enough time in the end, go back and check your answers. A good way to check your answers is to retry the question with the hope of getting the same answer as before without looking at your working out from before

NO CALCULATOR ALLOWED

NAME:	

1.

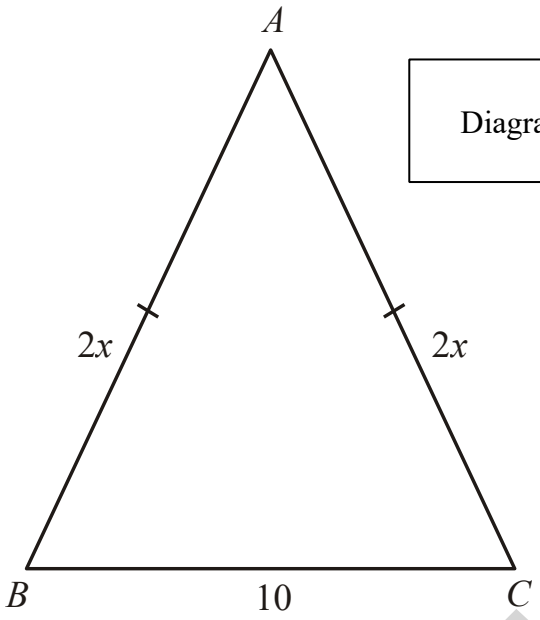

Diagram **NOT** accurately drawn

In the diagram, all measurements are in centimetres.

ABC is an isosceles triangle.
$AB = 2x$
$AC = 2x$
$BC = 10$

(a) Find an expression, in terms of x, for the **perimeter** of the triangle.
Simplify your expression.

.....

(2)

The perimeter of the triangle is 34 cm.

(b) Find the value of x.

$x =$.....

(2)

(4 marks)

2.

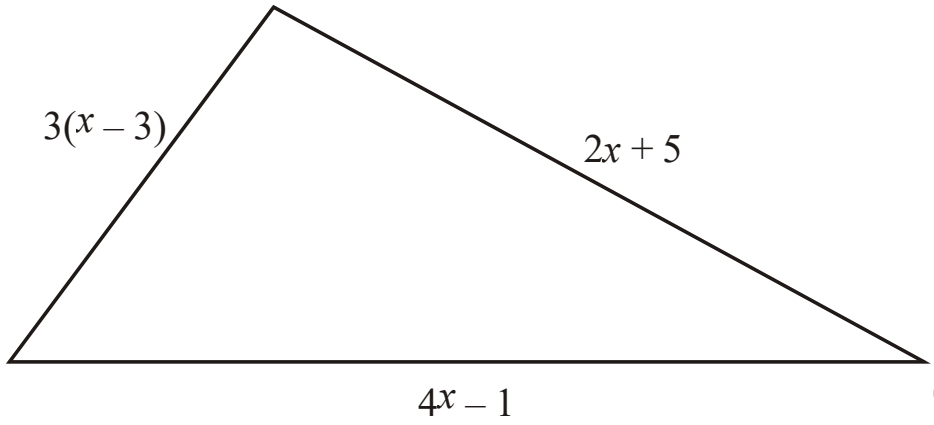

Diagram **NOT** accurately drawn

The lengths, in cm, of the sides of the triangle are $3(x – 3)$, $4x – 1$ and $2x + 5$

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

..... cm

(2)

The perimeter of the triangle is 49 cm.

(b) Work out the value of x.

$x =$ .....

(2)

(4 marks)

3.

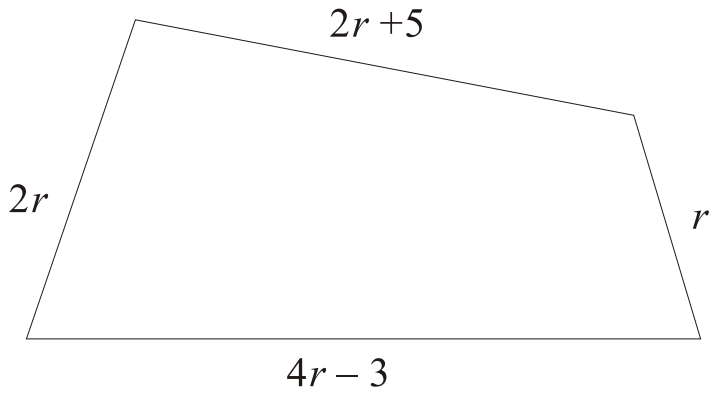

Diagram **NOT** accurately drawn

In the diagram, all measurements are in centimetres.

The lengths of the sides of the quadrilateral are

$2r + 5$
$2r$
$4r - 3$ r

(a) Find an expression, in terms of r, for the perimeter of the quadrilateral.
Give your expression in its simplest form.

.....

(2)

The perimeter of the quadrilateral is 65 cm.

(b) Work out the value of r.

r = ...

(2)

(4 marks)

4.

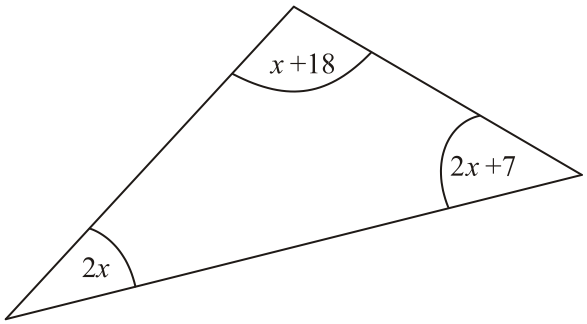

Diagram **NOT** accurately drawn

The sizes of the angles, in degrees, of the triangle are

$2x + 7$
$2x\ x + 18$

(a) Use this information to write down an equation in terms of x.

.....

(2)

(b) Use your answer to part (a) to work out the value of x.

$x =$ .....

(2)

(4 marks)

5.

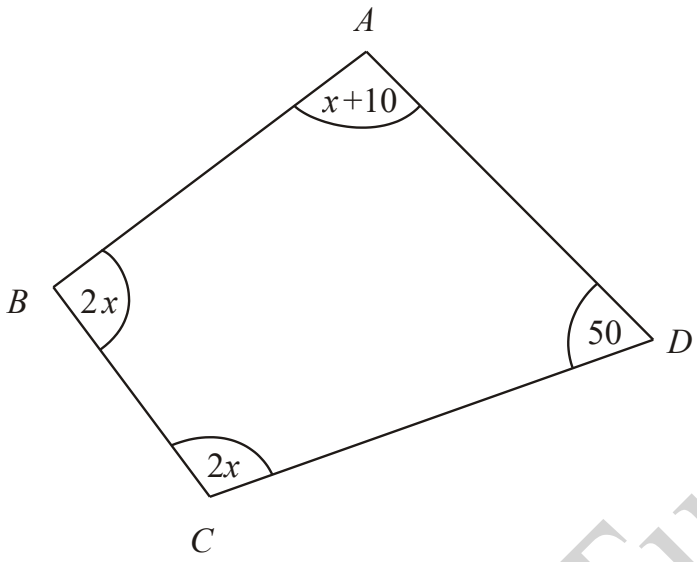

Diagram **NOT** accurately drawn

In this quadrilateral, the sizes of the angles, in degrees, are

$x + 10$
$2x$
$2x$
50

(a) Use this information to write down an equation in terms of x.

.....

(2)

(b) Work out the value of x.

$x =$ .....

(3)

(5 marks)

6.

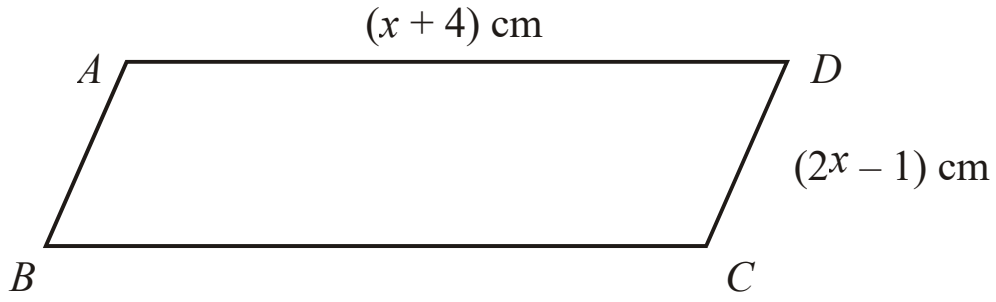

Diagram **NOT** accurately drawn

ABCD is a parallelogram.
AD = (*x* + 4) cm,
CD = (2*x* – 1) cm.
The perimeter of the parallelogram is 24 cm.

(i) Use this information to write down an equation, in terms of *x*.

……

(ii) Solve your equation.

x = ……

(4 marks)

7. The perimeter of this triangle is 19 cm.
All lengths on the diagram are in centimetres.

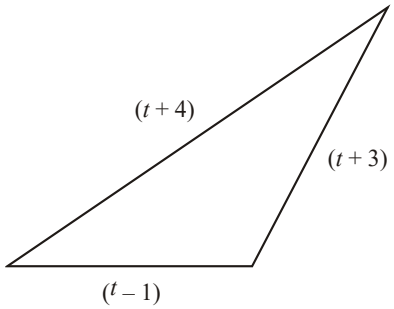

Diagram **NOT** accurately drawn

Work out the value of t.

t = ...

(3 marks)

8.

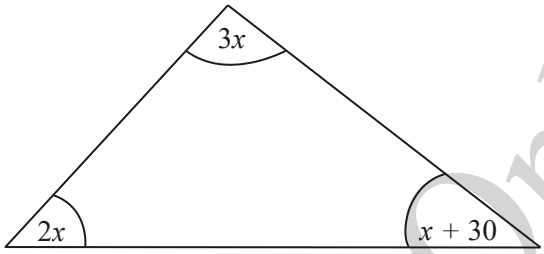

Diagram **NOT** accurately drawn

The diagram shows a triangle.
The sizes of the angles, in degrees, are

$3x$
$2x$ $x + 30$

Work out the value of x.

x = ...

(3 marks)

9.

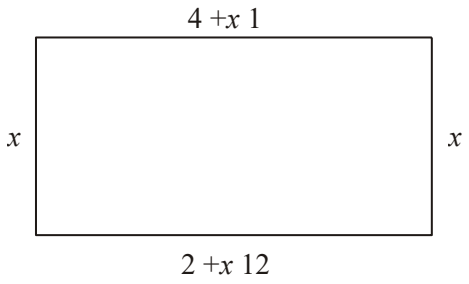

Diagram **NOT** accurately drawn

The diagram shows a rectangle.
All the measurements are in centimetres.

(a) Explain why $4x + 1 = 2x + 12$

.....

.....

(1)

(b) Solve $4x + 1 = 2x + 12$

$x =$ .....

(2)

(c) Use your answer to part (b) to work out the perimeter of the rectangle.

..... cm

(2)

(5 marks)