1.

A

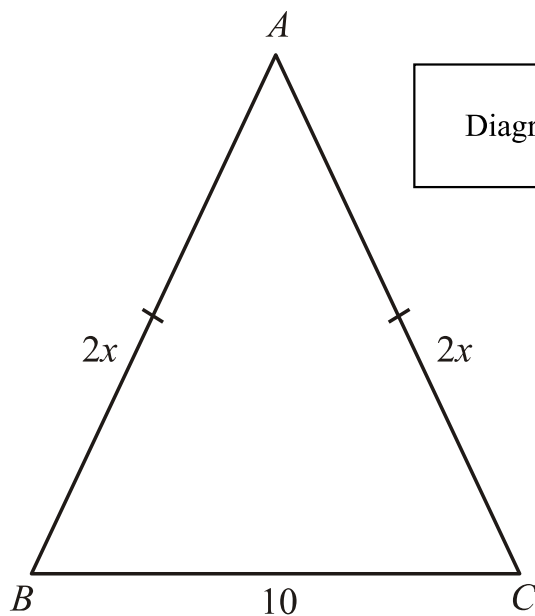Diagram **NOT** accurately drawn

2*x*   2*x*

B   10   *C*

In the diagram, all measurements are in centimetres.

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

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

$$2x + 2x + 10$$

.........$4x + 10$.........

(2)

The perimeter of the triangle is 34 cm.

(b)   Find the value of *x*.

$$4x + 10 = 34$$
$$4x = 24$$
$$x = 6$$

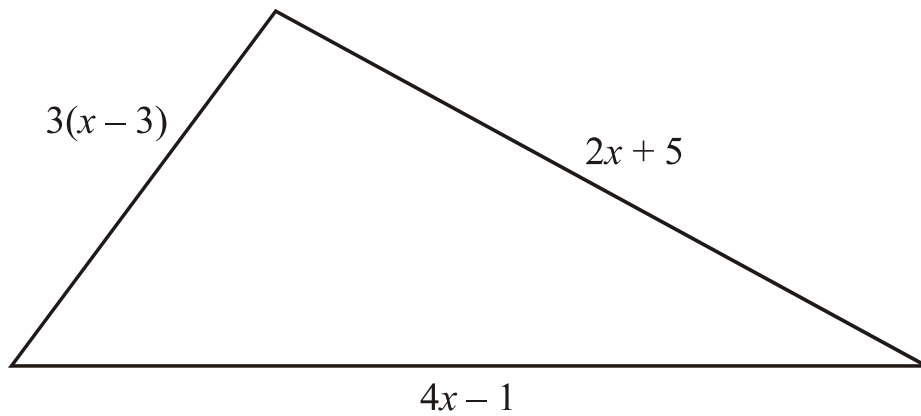*x* = ...6................

(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.

$$3(x-3) + 4x - 1 + 2x + 5$$
$$3x - 9 + 4x - 1 + 2x + 5$$

...... $9x - 5$ ...... cm

(2)

The perimeter of the triangle is 49 cm.

(b)   Work out the value of x.

$$9x - 5 = 49$$
$$9x = 54$$
$$x = 6$$

$x =$ ...... 6 ......

(2)

(4 marks)

3.

2r + 5

2r   r

4r − 3
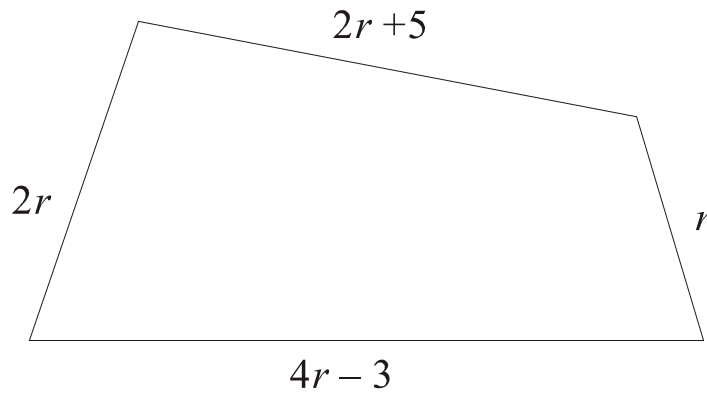
In the diagram, all measurements are in centimetres.

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.

$9r + 2$
....

(2)

The perimeter of the quadrilateral is 65 cm.

(b)   Work out the value of r.

$9r + 2 = 65$
$9r = 63$
$r = 7$

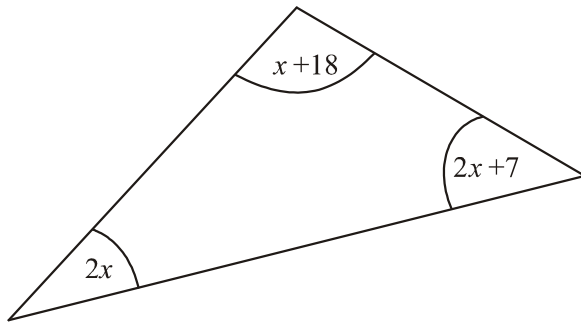$r =$ ....7..........

(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.

$$5x + 25 = 180$$

(2)

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

$$5x + 25 = 180$$
$$5x = 155$$
$$x = 31$$

$x = $ ....**31**........
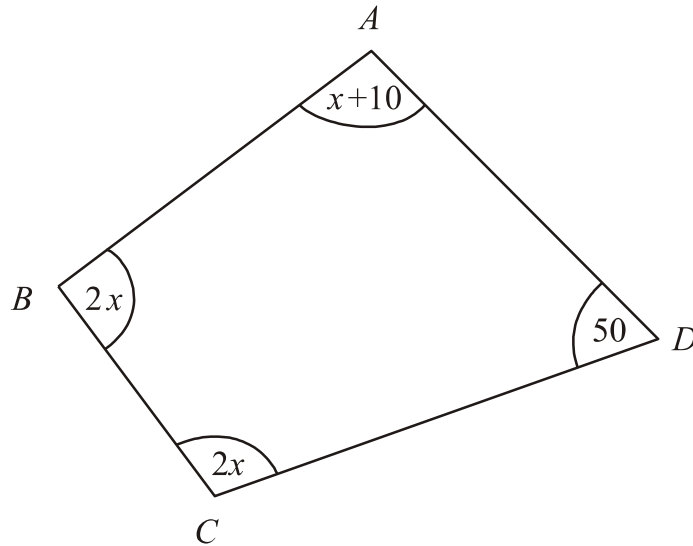
(2)

(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.

$$5x + 60 = 360$$

....

(2)

(b)   Work out the value of x.

$$5x + 60 = 360$$
$$5x = 300$$
$$x = 60$$

$x =$ ....**60**................

(3)

(5 marks)

6.

(x + 4) cm

A ⟋‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾⟍ D
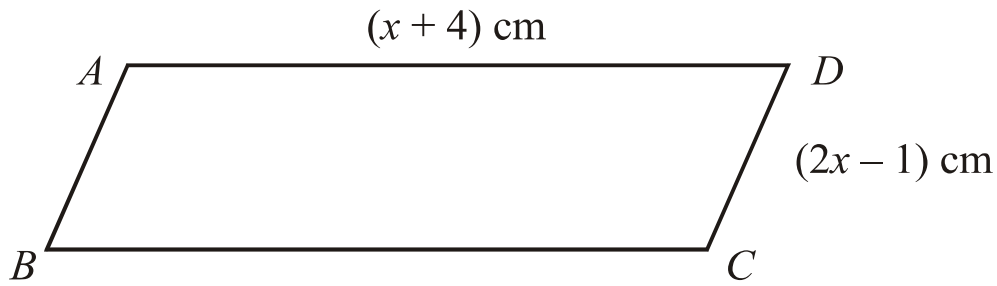
(2x – 1) cm

B ⟍‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾⟋ C

Diagram **NOT** accurately drawn

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

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

$$2(x+4) + 2(2x-1) = 24$$
$$2x+8 + 4x - 2 = 24$$
$$6x + 6 = 24$$

(ii)   Solve your equation.

$$6x + 6 = 24$$
$$6x = 18$$
$$x = 3$$

x = ...3...........

(4 marks)

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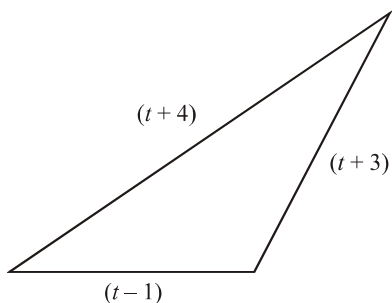All lengths on the diagram are in centimetres.

$(t + 4)$

$(t + 3)$

$(t - 1)$

Diagram **NOT** accurately drawn

Work out the value of t.

$$3t + 6 = 19$$
$$3t = 13$$
$$t = \frac{13}{3}$$

$t = \dfrac{13}{3}$

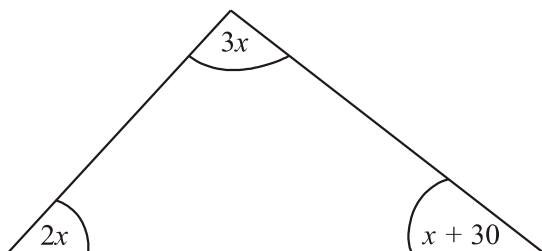**(3 marks)**

8.

$3x$

$2x$ $x + 30$

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.

$$6x + 30 = 180$$
$$6x = 150$$
$$x = 25$$

$x = 25$

(3 marks)

9.

$4x + 1$

x x

$2x + 12$

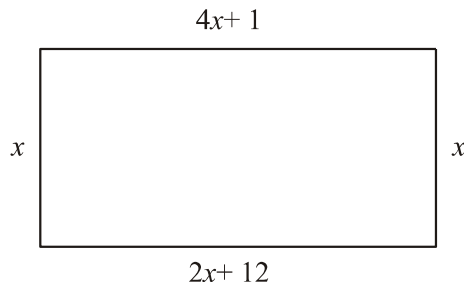Diagram **NOT** accurately drawn

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

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

.... Opposite sides in a rectangle are equal ....

....

(1)

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

$2x + 1 = 12$

$2x = 11$

$x = \frac{11}{2}$

$x =$ .... **5.5** ....

(2)

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

$perimeter = 8x + 13$

$= 44 + 13$

$= 57$

.... **57** .... cm

(2)

(5 marks)