SCORE A+

Algebra

With Classified answer book

8

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9- Forming and Solving Equations

1.

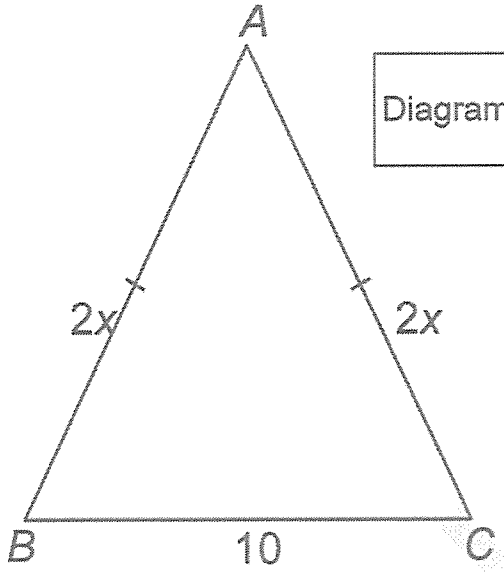


Diagram **NOT** accurately drawn

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.

.....

The perimeter of the triangle is 34 cm.

(b) Find the value of *x*.

x =.....

2.

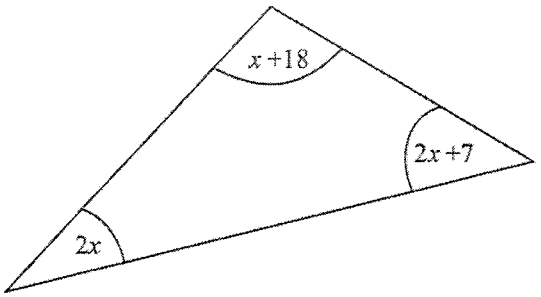


Diagram **NOT** accurately drawn

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.

.....

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

x = ...

3.

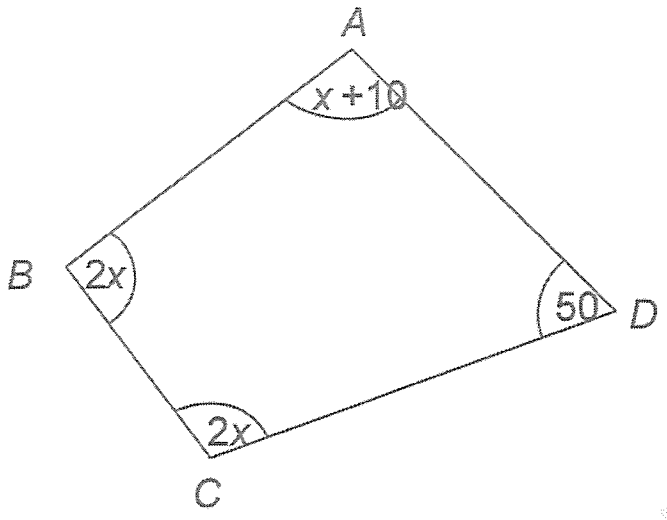


Diagram **NOT** accurately drawn

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.

(b) Work out the value of x.....

x = ...

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

Work out the value of t.

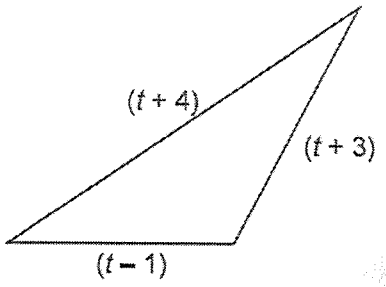


Diagram **NOT** accurately drawn

t = ...

5.

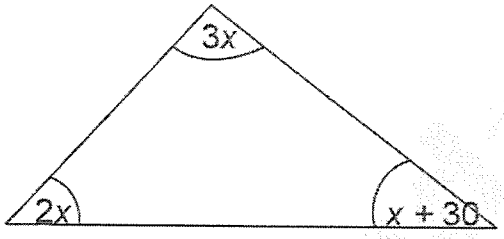


Diagram **NOT** accurately drawn

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

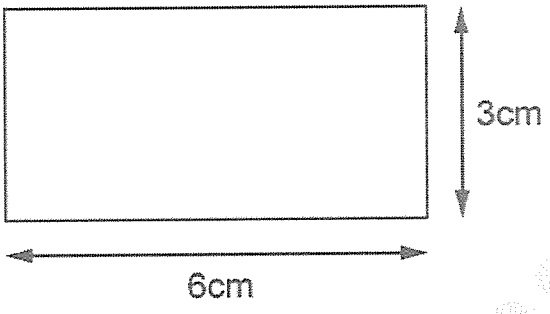
$3x$
$2x$
$x + 30$

Work out the value of x.

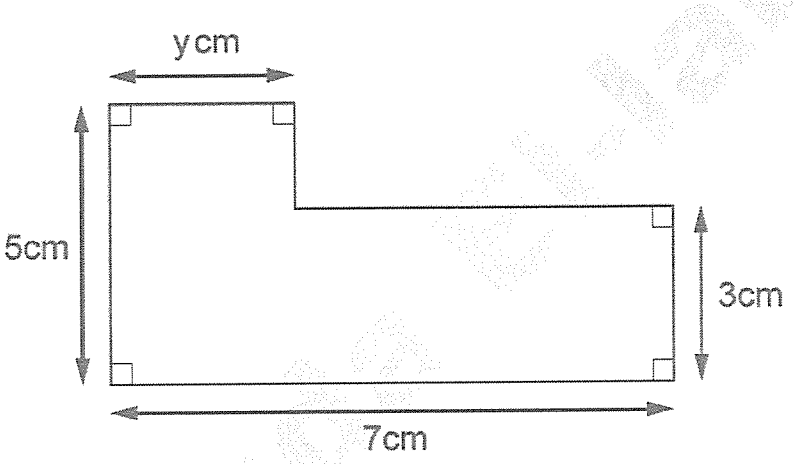
x = ...

6. The area of this rectangle is $18cm^2$ The perimeter is 18cm.

The values are equal.



What value of *y* makes the area and perimeter of this L-shape equal in value?

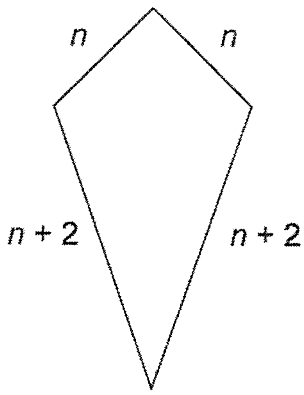


Not drawn accurately

y = _____

7. The diagram shows a kite.

The side lengths are in centimetres.



Not drawn accurately

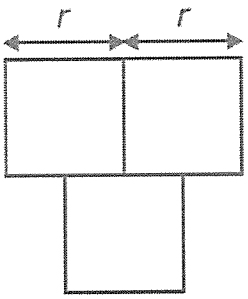
(a) When $n = 9$, what is the perimeter of the kite?

__________ cm

(b) When the perimeter of the kite is **100 cm**, what is the value of n?

n = __________

8. Look at this diagram of three identical squares with sides length r



(a) Write an expression in terms of r for the total area of the three squares.

. . . . . .

(b) Write an expression in terms of r for the area of a circle with radius r

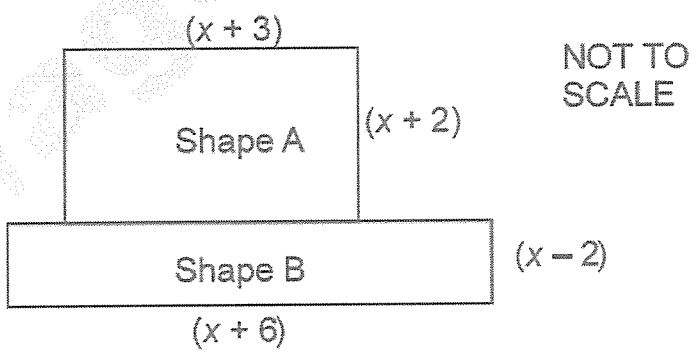
. . . . . .

9. Two different rectangles are joined together to make a compound shape.

Shape A has a length of $(x + 3)$ and a width of $(x + 2)$.

Shape B has a length of $(x + 6)$ and a width of $(x - 2)$.

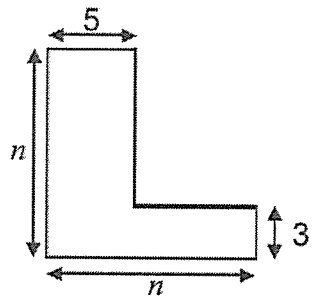
All measurements are in centimetres.



Find an expression for the area of the compound shape in cm^2.

Give your answer in the form $ax^2 + bx + c$.

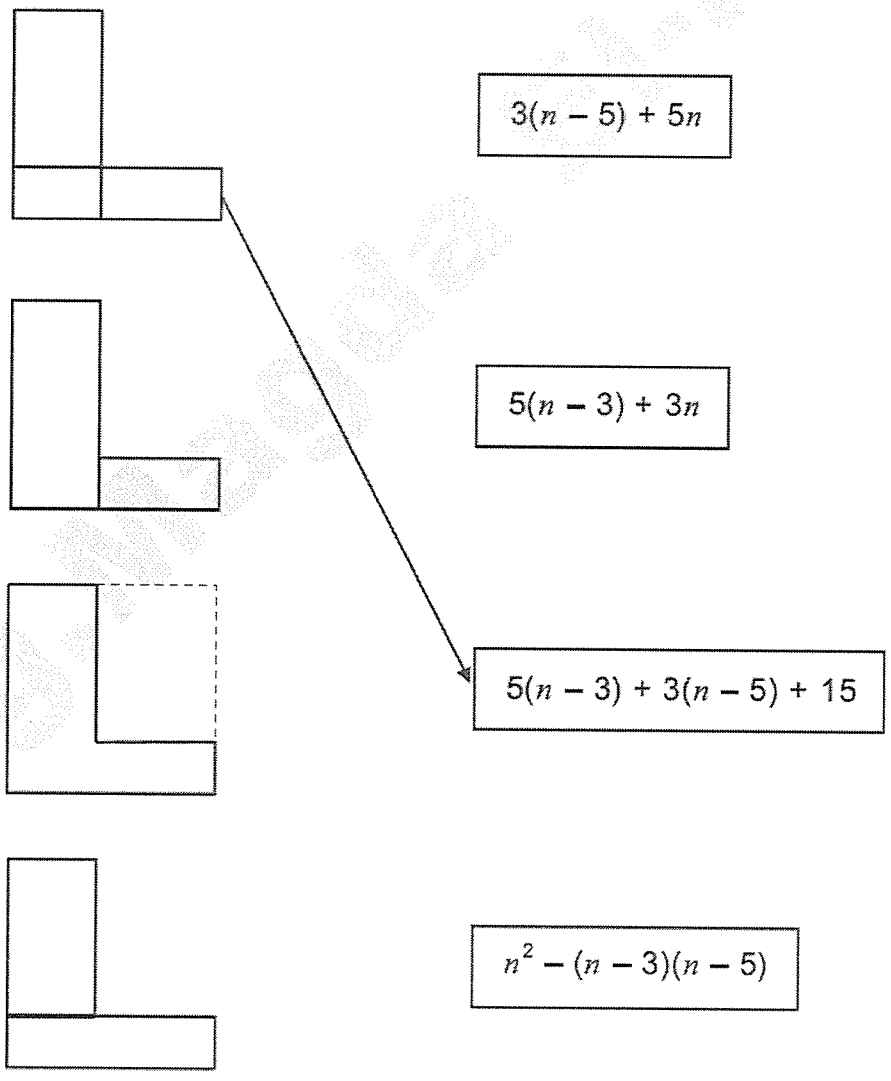
10. Four pupils want to find the area of this shape.



They each draw a different diagram and write a different expression for the area.

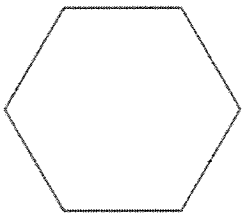
Draw an arrow from each diagram to the expression that it represents.

The first is done for you.



11. (a) The **perimeter** of a regular hexagon is $42a + 18$

Write an expression for the length of **one** of its sides.



_____

(b) The **perimeter** of a different regular polygon is $75b - 20$

The length of one of its sides is $15b - 4$

How many sides does this regular polygon have?

_____

(c) The **perimeter** of a square is $4(c - 9)$

Find the perimeter of the square when $c = 15$

_____