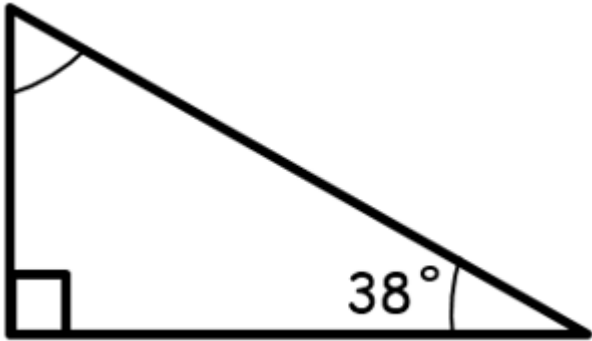
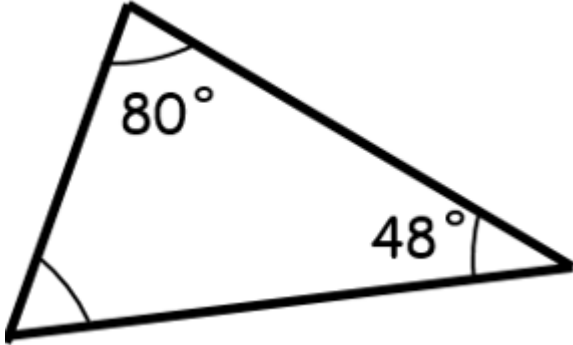


Angles in polygons

[CONTENTS](#)

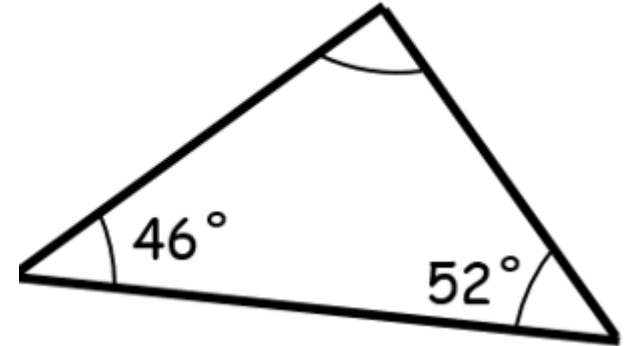
Worked example

Find the missing angles:



Your turn

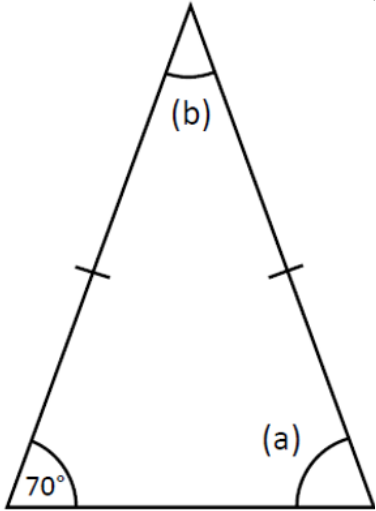
Find the missing angles:



82°

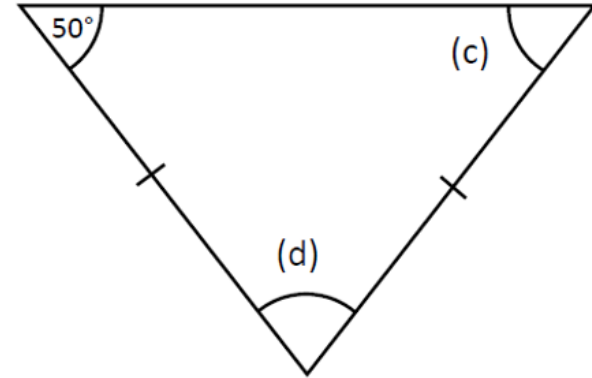
Worked example

Find the missing angles:



Your turn

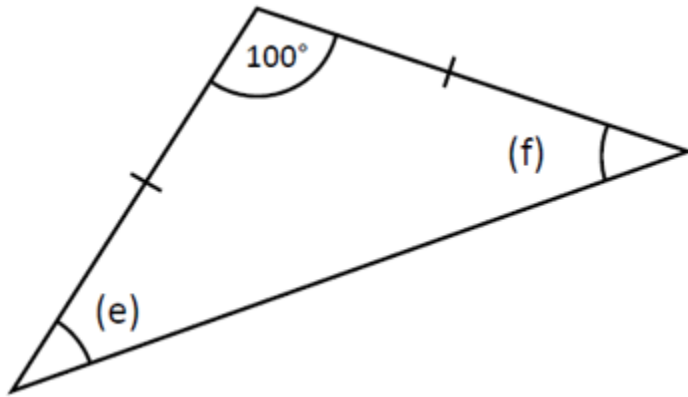
Find the missing angles:



$$c = 50^\circ$$
$$d = 80^\circ$$

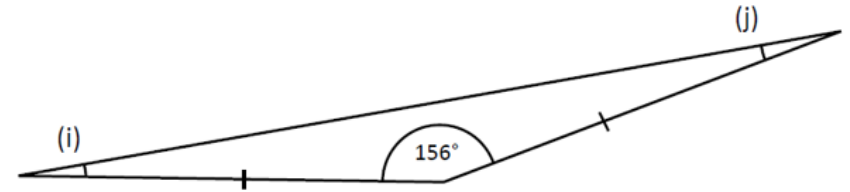
Worked example

Find the missing angles:



Your turn

Find the missing angles:

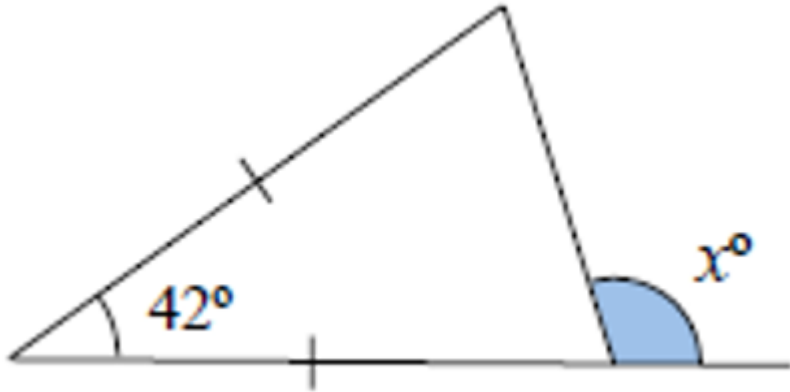


$$i = 12^\circ$$

$$j = 12^\circ$$

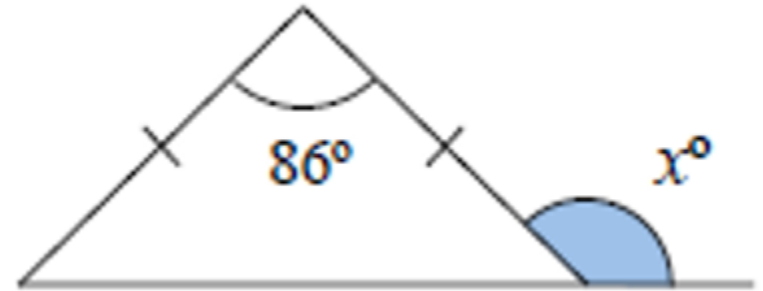
Worked example

Find x :



Your turn

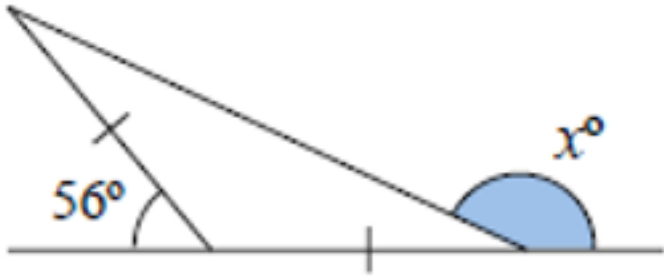
Find x :



$$x = 133$$

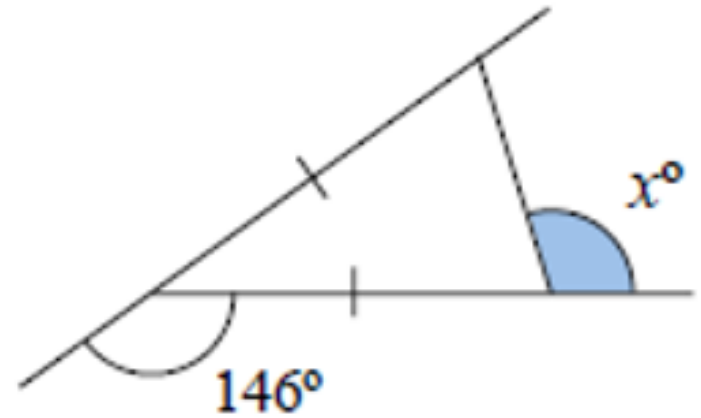
Worked example

Find x :



Your turn

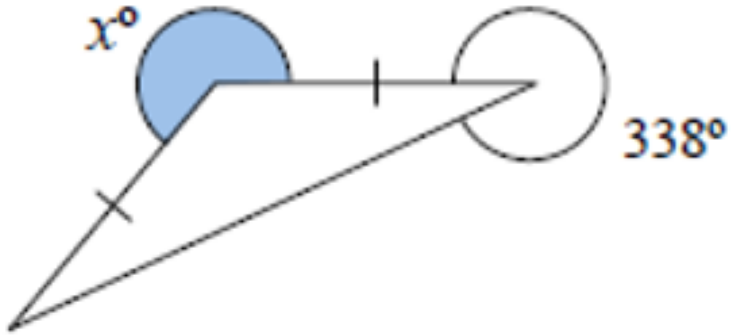
Find x :



$$x = 107$$

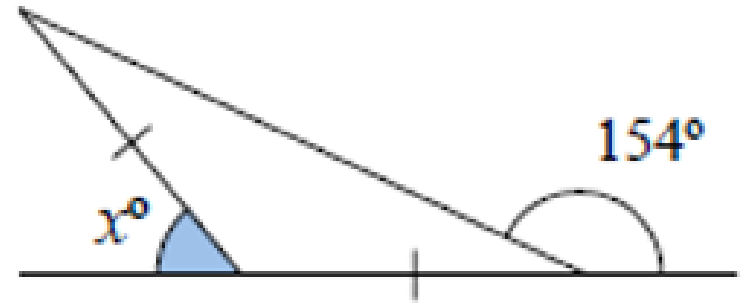
Worked example

Find x :



Your turn

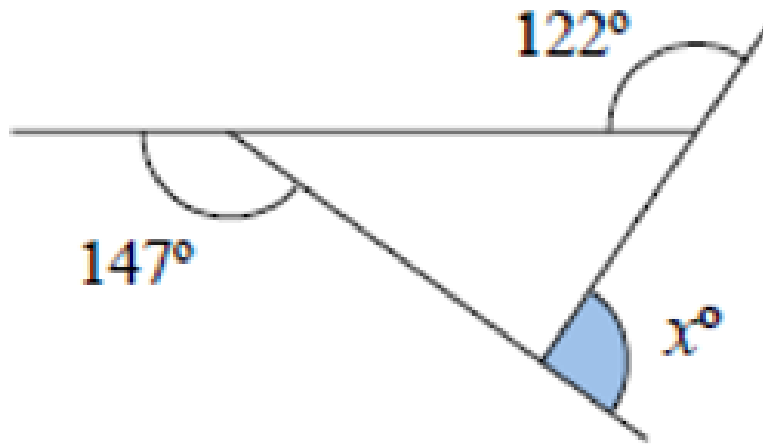
Find x :



$$x = 52$$

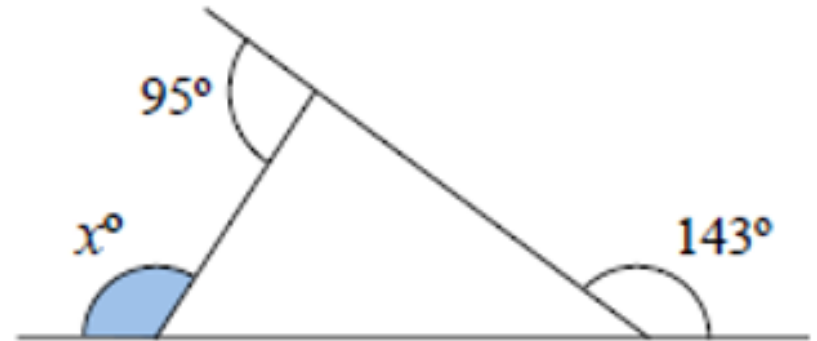
Worked example

Find x :



Your turn

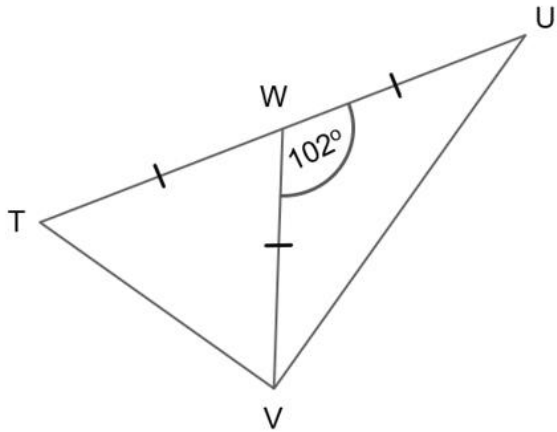
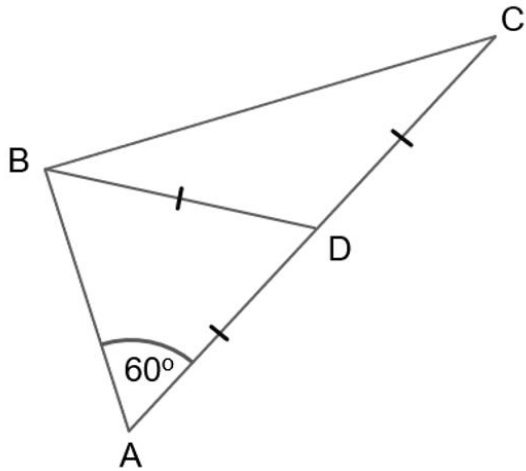
Find x :



$$x = 122$$

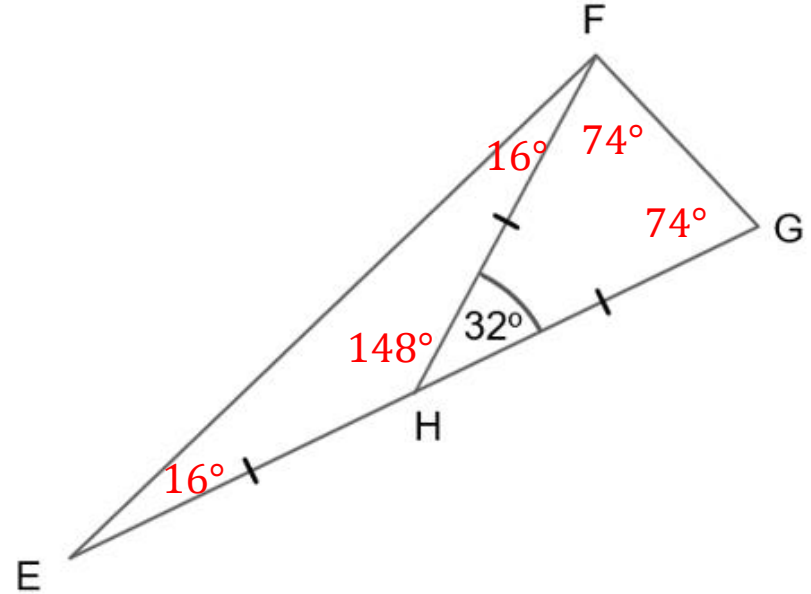
Worked example

Find the missing angles:



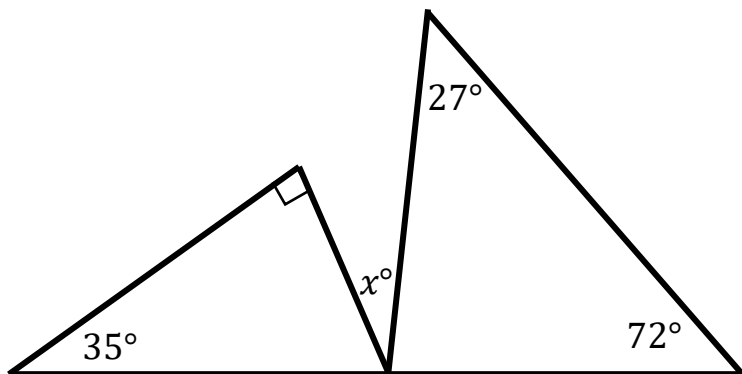
Your turn

Find the missing angles:



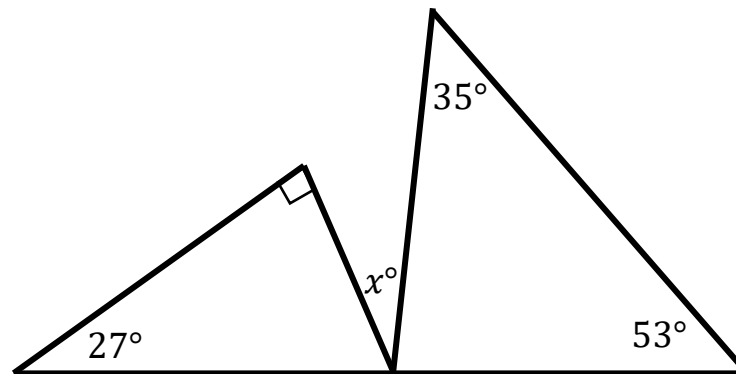
Worked example

Find x :



Your turn

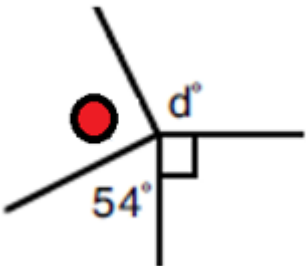
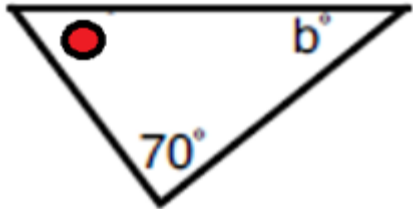
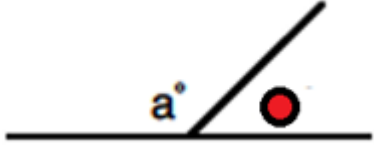
Find x :



$$x = 25$$

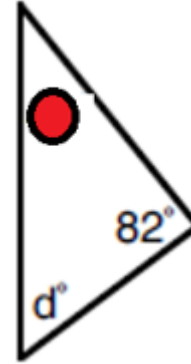
Worked example

Write an expression for the angle:



Your turn

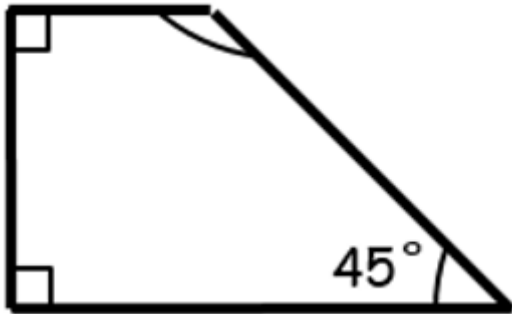
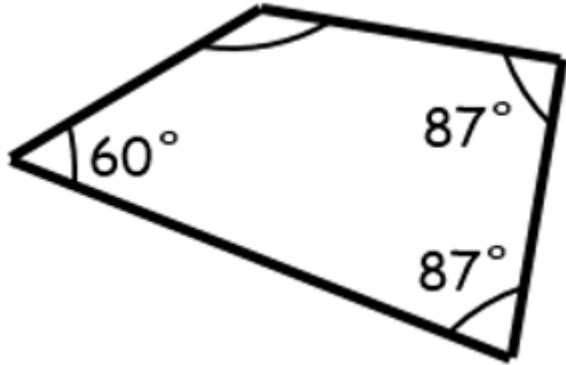
Write an expression for the angle:



$$98 - d$$

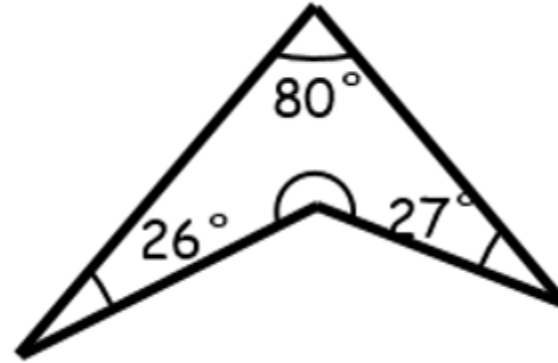
Worked example

Find the missing angles:



Your turn

Find the missing angles:



227°

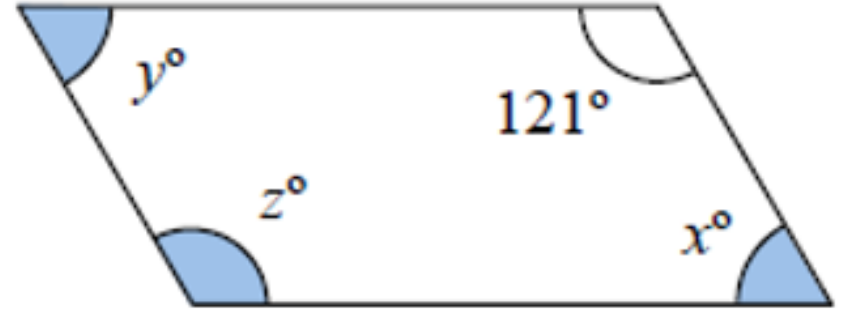
Worked example

Find the missing angles:



Your turn

Find the missing angles:



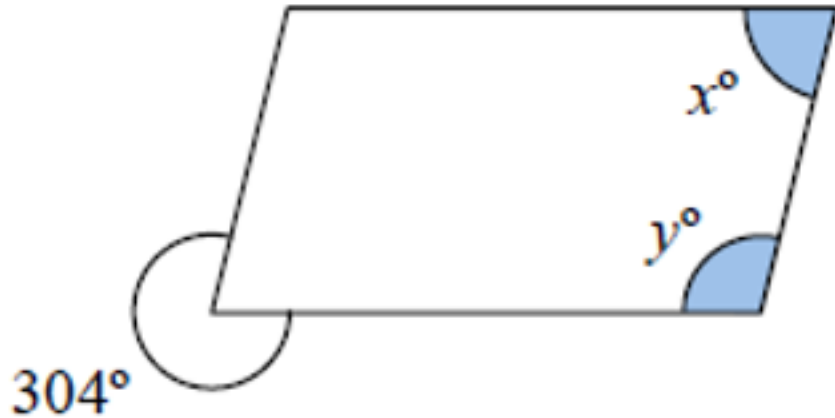
$$x = 59$$

$$y = 59$$

$$z = 121$$

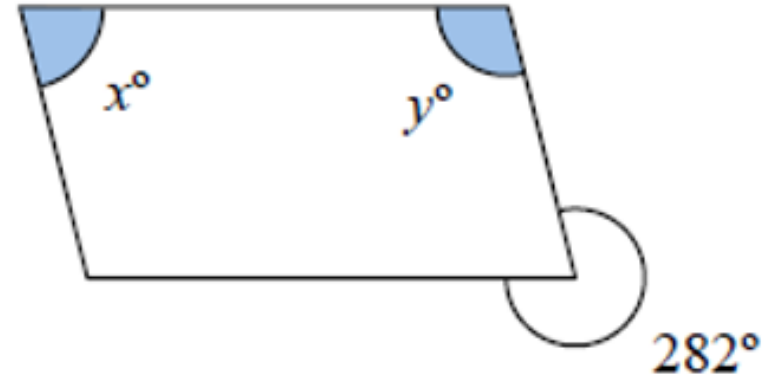
Worked example

Find the missing angles:



Your turn

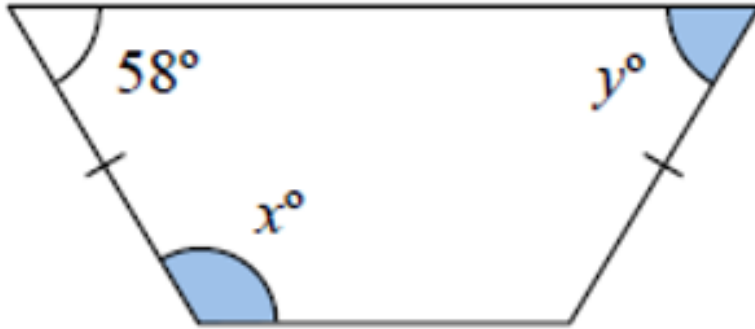
Find the missing angles:



$$x = 78$$
$$y = 102$$

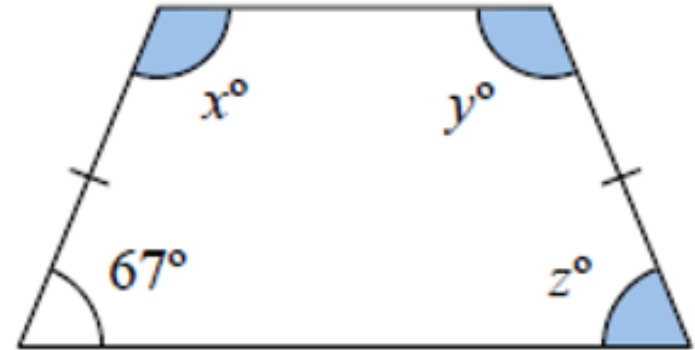
Worked example

Find the missing angles:



Your turn

Find the missing angles:



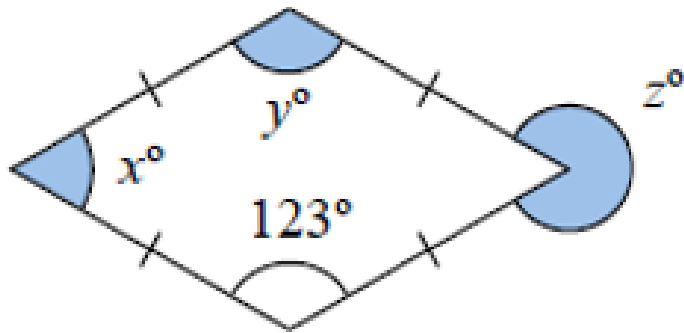
$$x = 113$$

$$y = 113$$

$$z = 67$$

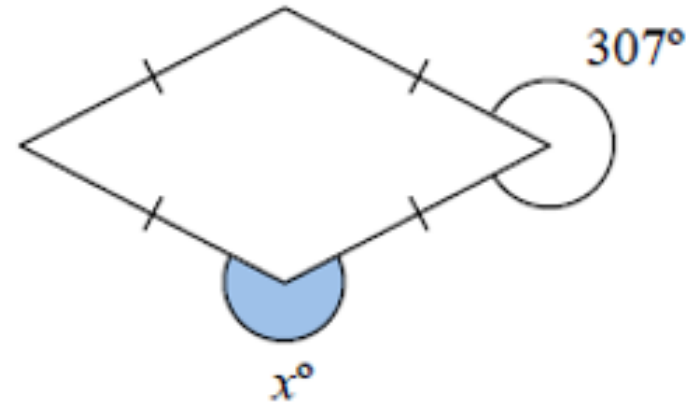
Worked example

Find the missing angles:



Your turn

Find the missing angles:



$$x = 233$$

Worked example

Calculate the sum of the interior angles of the polygons:

Quadrilateral

Pentagon

Hexagon

Heptagon

Your turn

Calculate the sum of the interior angles of the polygons:

Octagon 1080°

Decagon 1440°

Worked example

Calculate the size of one interior angle of the regular polygons:

Quadrilateral

Pentagon

Hexagon

Heptagon

Your turn

Calculate the size of one interior angle of the regular polygons:

Octagon 135°

Decagon 144°

Worked example

Calculate the size of one interior angle of the regular polygons :

Quadrilateral

Pentagon

Hexagon

Heptagon

Your turn

Calculate the size of one interior angle of the regular polygons:

Octagon 45°

Decagon 36°

Worked example	Your turn
Calculate the sum of the exterior angles of the polygons:	Calculate the sum of the exterior angles of the polygons:
Quadrilateral	Octagon 360°
Pentagon	
Hexagon	Decagon 360°
Heptagon	

Worked example

A regular polygon has an exterior angle of 30° . How many sides does it have?

A regular polygon has an exterior angle of 45° . How many sides does it have?

Your turn

A regular polygon has an exterior angle of 60° . How many sides does it have?

Six: Hexagon

Worked example

A regular polygon has interior angles of size 150° . How many sides does it have?

A regular polygon interior angles of size 135° . How many sides does it have?

Your turn

A regular polygon has interior angles of size 120° . How many sides does it have?

Six: Hexagon

Worked example

The size of each interior angle of a regular polygon is 9 times the size of each exterior angle. How many sides does the polygon have?

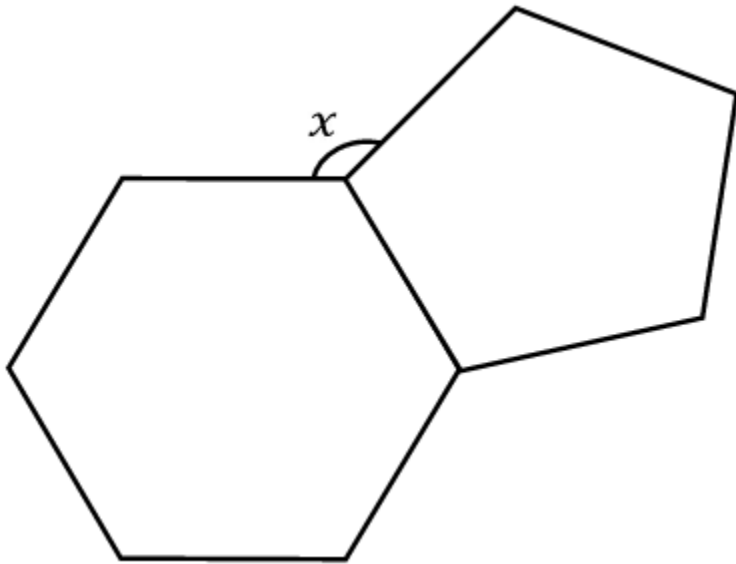
Your turn

The size of each interior angle of a regular polygon is 11 times the size of each exterior angle. How many sides does the polygon have?

12: Dodecagon

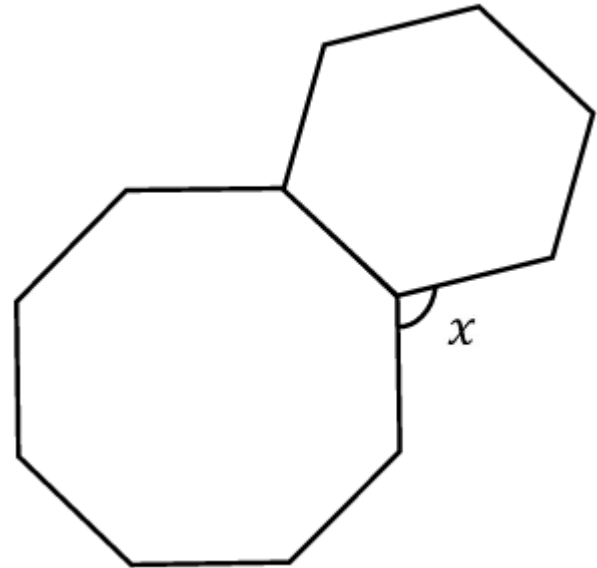
Worked example

These are regular polygons.
Find x



Your turn

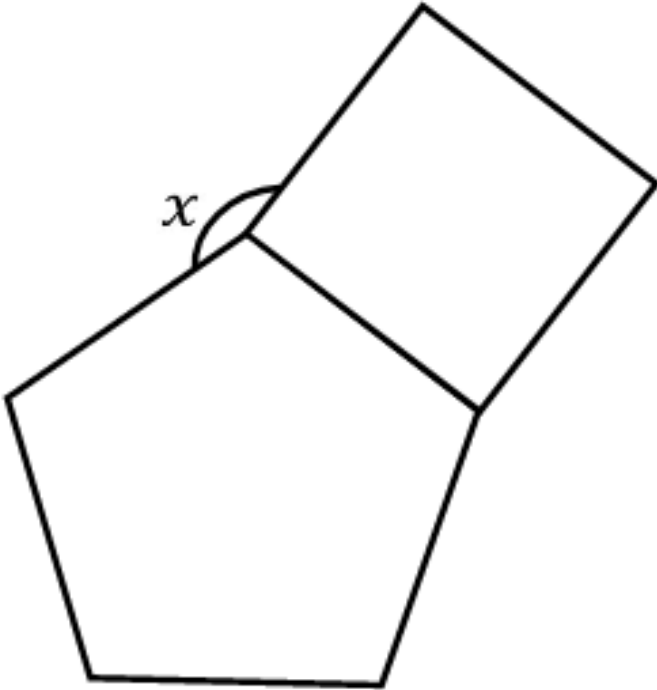
These are regular polygons.
Find x



$$x = 105^\circ$$

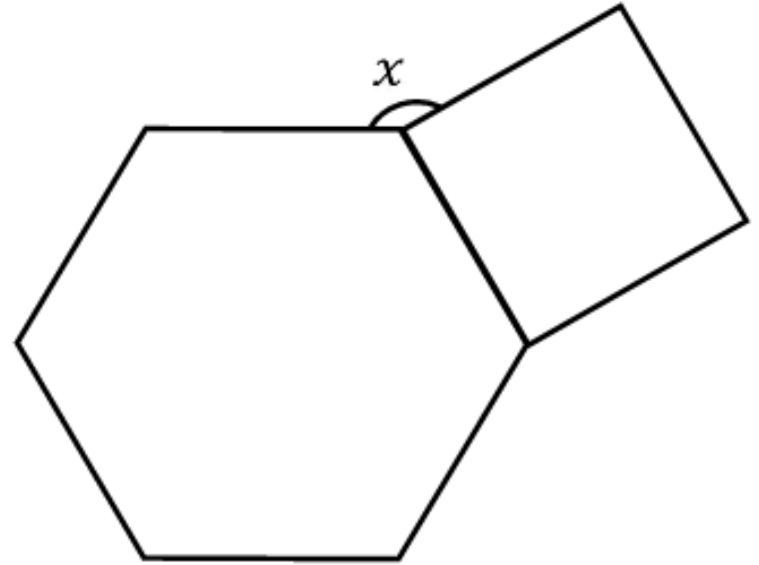
Worked example

These are regular polygons.
Find x



Your turn

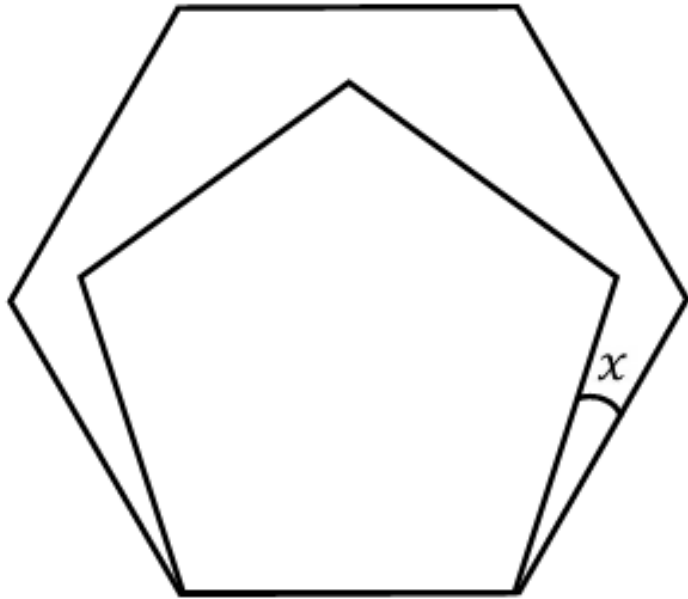
These are regular polygons.
Find x



$$x = 150^\circ$$

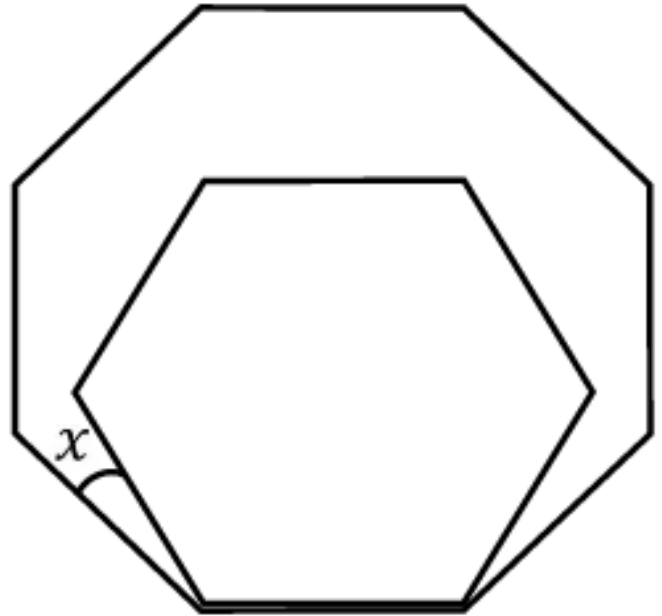
Worked example

These are regular polygons.
Find x



Your turn

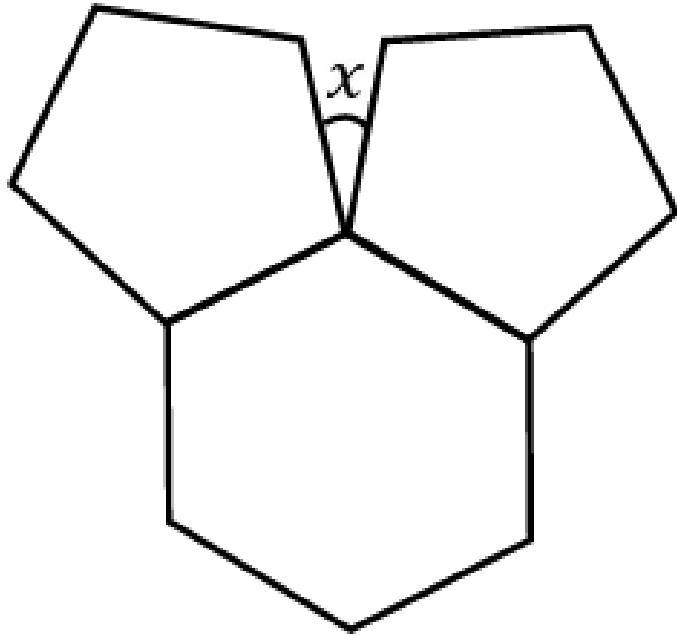
These are regular polygons.
Find x



$$x = 15^\circ$$

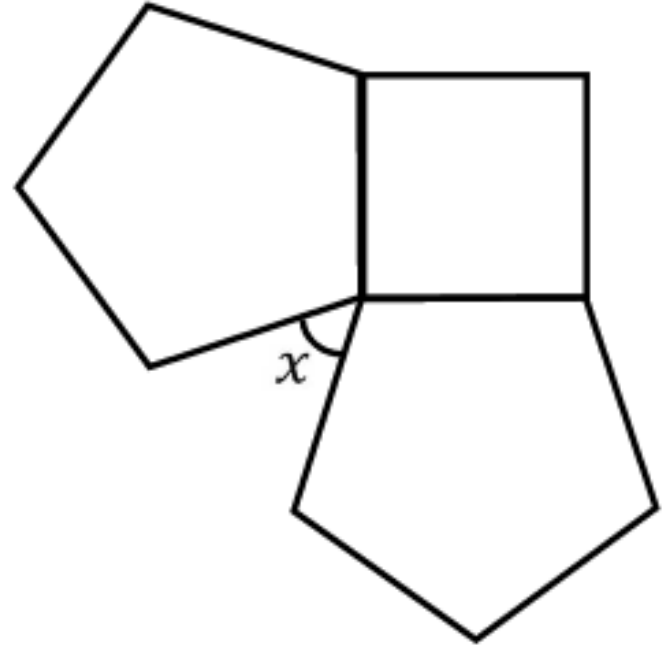
Worked example

These are regular polygons.
Find x



Your turn

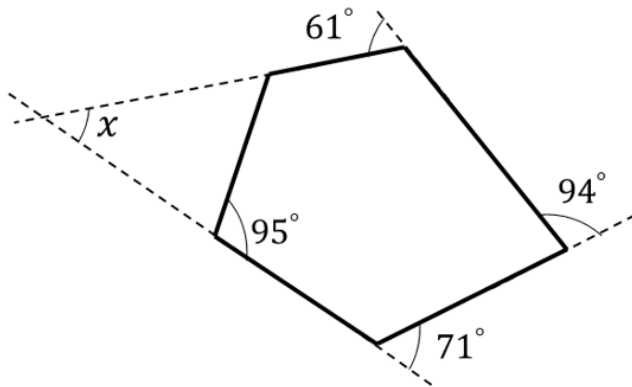
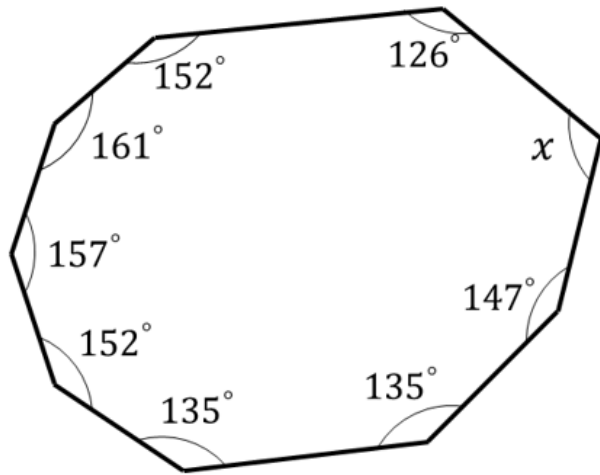
These are regular polygons.
Find x



$$x = 54^\circ$$

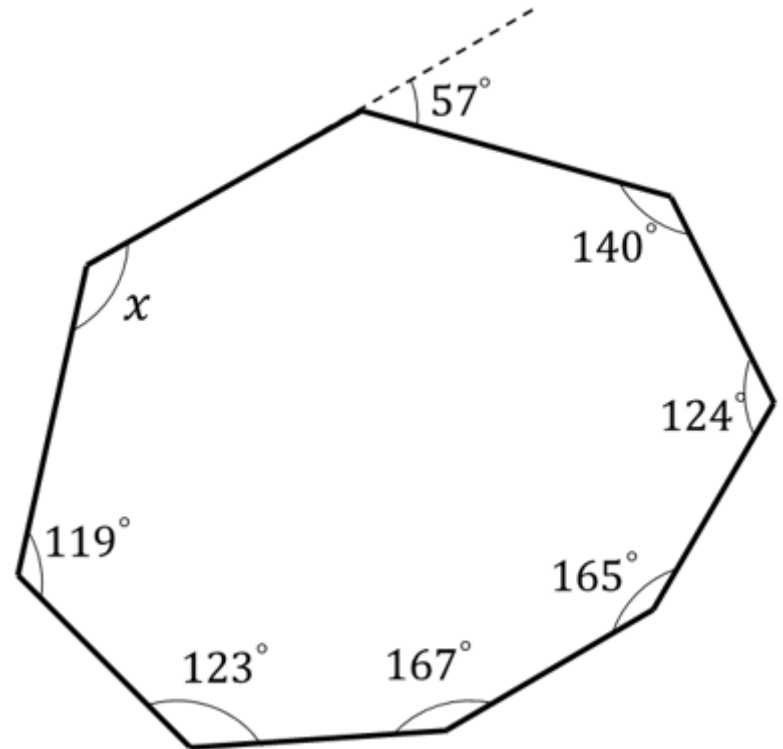
Worked example

Find x



Your turn

Find x



$$x = 119^\circ$$

Worked example

In a quadrilateral, the four angles increase in size by 2 degrees each time from smallest to largest.
What are the angles?

Your turn

In a quadrilateral, the four angles increase in size by 4 degrees each time from smallest to largest.
What are the angles?

$84^\circ, 88^\circ, 92^\circ, 96^\circ$

Worked example

In a quadrilateral, the four angles are listed from largest to smallest. Each angle is three times the previous angle.
What are the angles?

Your turn

In a quadrilateral, the four angles are listed from largest to smallest. Each angle is twice the previous angle.
What are the angles?

$192^\circ, 96^\circ, 48^\circ, 24^\circ$

Worked example

In a quadrilateral, the four angles are listed from largest to smallest. Each angle is one third of the previous angle.

What are the angles?

Your turn

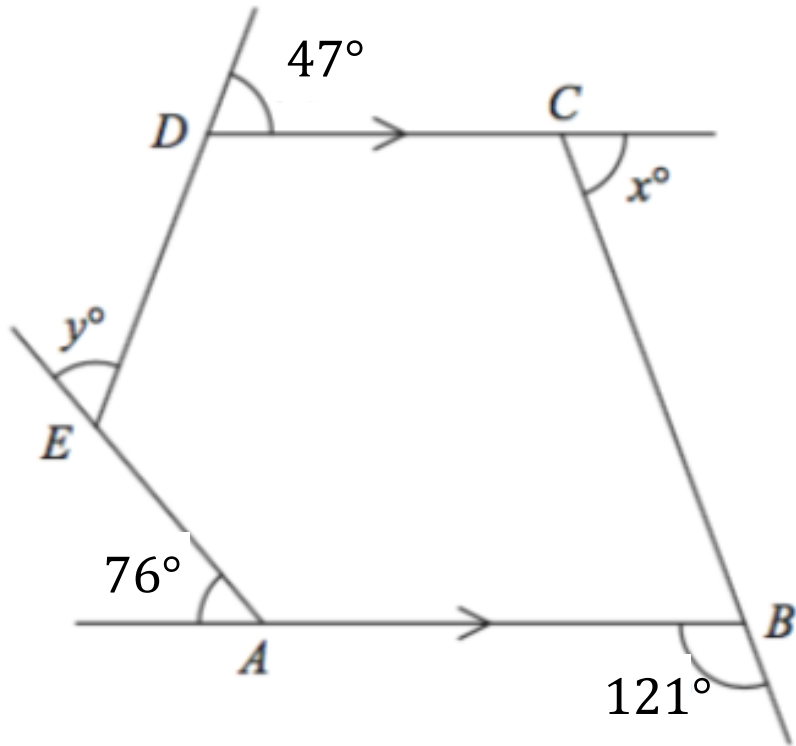
In a quadrilateral, the four angles are listed from largest to smallest. Each angle is half the previous angle.

What are the angles?

$192^\circ, 96^\circ, 48^\circ, 24^\circ$

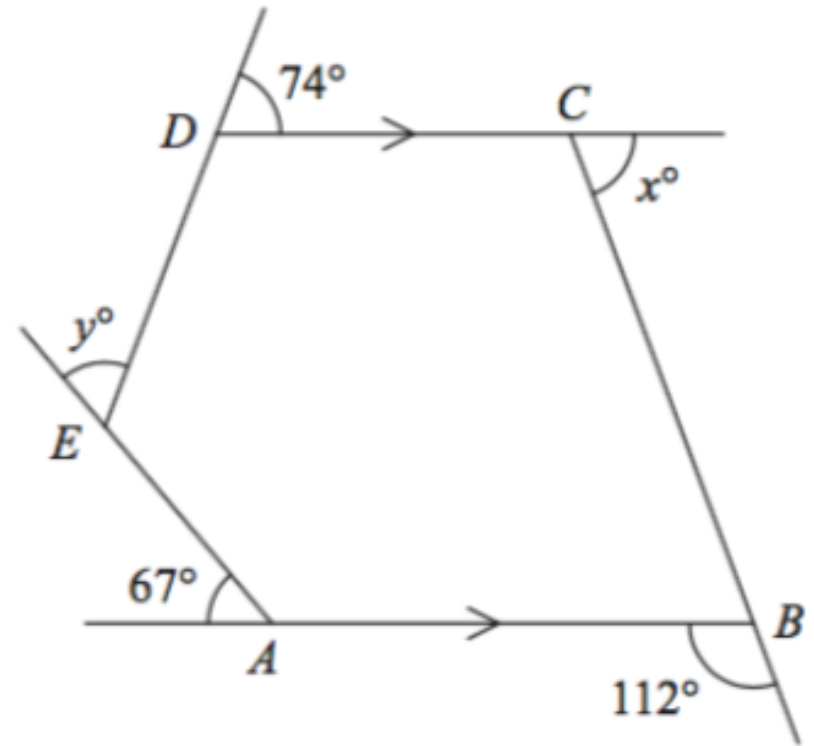
Worked example

Calculate x and y



Your turn

Calculate x and y



$$x = 68$$

$$y = 39$$