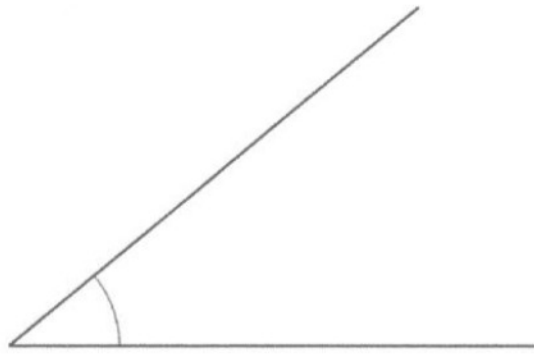


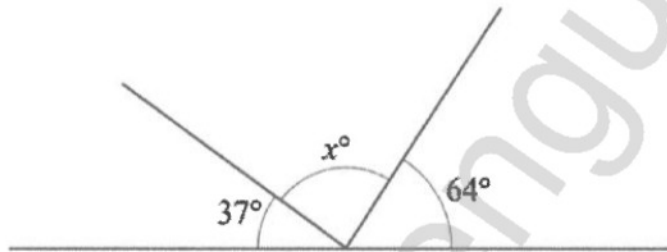
1



Measure the marked angle.

40° [1]

2



NOT TO
SCALE

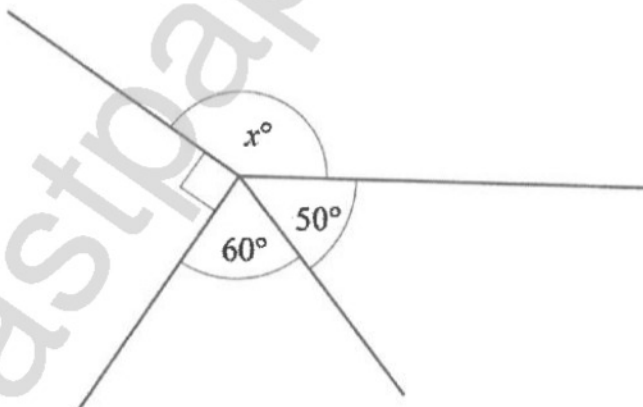
$$64 + 37 = 101$$

$$180 - 101 = 79^\circ$$

Find the value of x .

$x = 79^\circ$ [1]

5



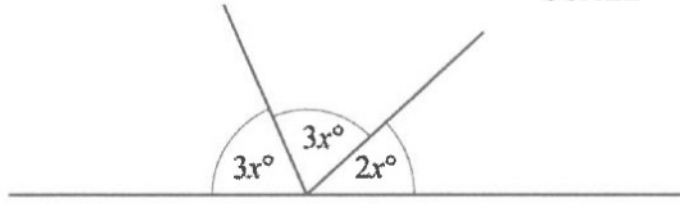
NOT TO
SCALE

$$90 + 60 + 50 = 200$$

$$360 - 200 = 160^\circ$$

Find the value of x .

$x = 160^\circ$ [1]

NOT TO
SCALE

The diagram shows three angles on a straight line.

Find the value of x .

$$3x + 3x + 2x = 180$$

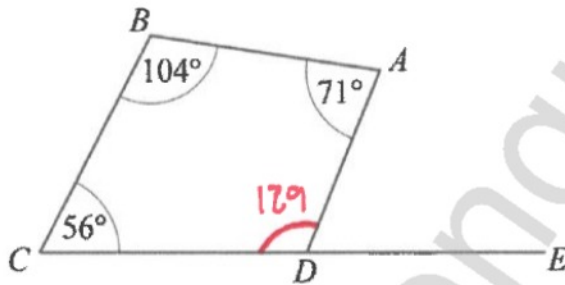
$$8x = 180$$

$$\div 8 \quad \div 8$$

$$x = 22.5$$

$$x = 22.5 \quad [2]$$

1

NOT TO
SCALE

CDE is a straight line.

Find angle ADE .

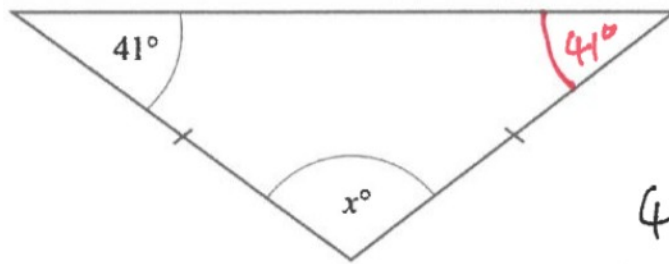
$$104 + 71 + 56 = 231$$

$$360 - 231 = 129$$

$$180 - 129 = 51^\circ$$

$$51^\circ \quad [2]$$

- 1 The diagram shows an isosceles triangle.



NOT TO
SCALE

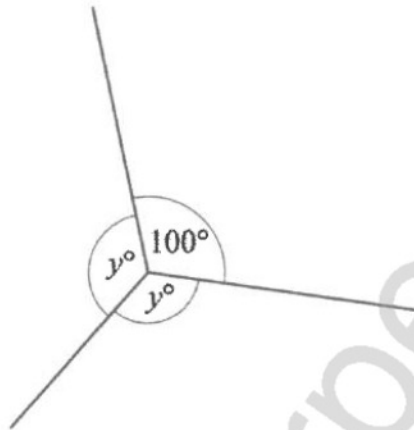
Find the value of x .

$$41 + 41 = 82$$

$$180 - 82 = 98$$

$$x = 98^\circ \quad [2]$$

4



NOT TO
SCALE

Find the value of y .

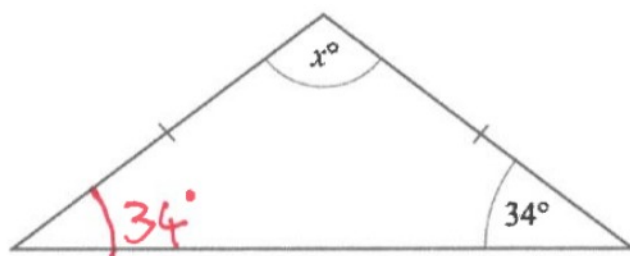
$$y + y + 100 = 360$$

$$2y + 100 = 360$$

$$\begin{array}{r} 2y + 100 = 360 \\ -100 \quad -100 \\ \hline 2y = 260 \\ \div 2 \quad \div 2 \\ \hline y = 130 \end{array}$$

$$y = 130 \quad [2]$$

1

NOT TO
SCALE

The diagram shows an isosceles triangle.

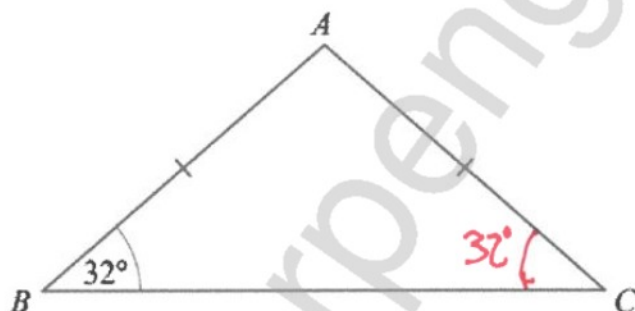
Find the value of x .

$$34 + 34 = 68$$

$$180 - 68 = 112$$

$$x = 112^\circ \quad [2]$$

3

NOT TO
SCALE

Triangle ABC is isosceles.
Angle $ABC = 32^\circ$ and $AB = AC$.

Find angle BAC .

$$32 + 32 = 64$$

$$180 - 64 = 116^\circ$$

$$\text{Angle } BAC = 116^\circ \quad [2]$$



NOT TO
SCALE

The clock shows the time 09 30.

Work out the obtuse angle between the hands of the clock.

Angle between each hour:

$$\frac{360}{12} = 30^\circ$$

Between 6:00 and 9:30:

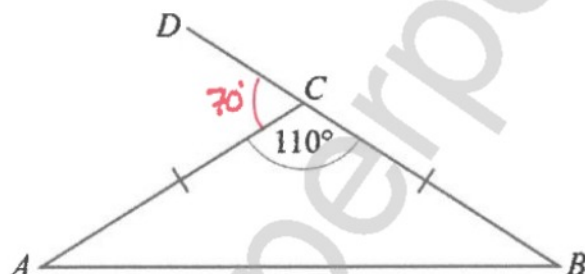
$$30 \times 3.5 = 105^\circ$$

↑
3.5 hrs

105°

[2]

1



NOT TO
SCALE

In triangle ABC , $AC = BC$ and BCD is a straight line.

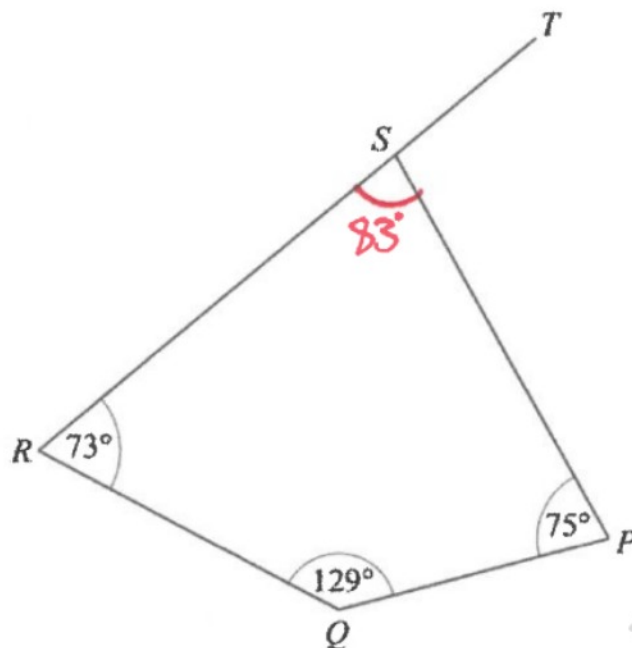
(a) Find angle ACD . $180 - 110 = 70^\circ$

Angle $ACD = 70^\circ$ [1]

(b) Find angle ABC . $180 - 110 = 70$
 $70 \div 2 = 35^\circ$

Angle $ABC = 35^\circ$ [1]

3

NOT TO
SCALE

$PQRS$ is a quadrilateral.
 RST is a straight line.

Find angle PST .

$$129 + 73 + 75 = 277$$

$$360 - 277 = \underline{83}$$

$$180 - 83 = 97^\circ$$

Angle $PST = \underline{97^\circ}$ [2]

3

NOT TO
SCALE

$AB = BC$ and ABD is a straight line.

Find the value of x .

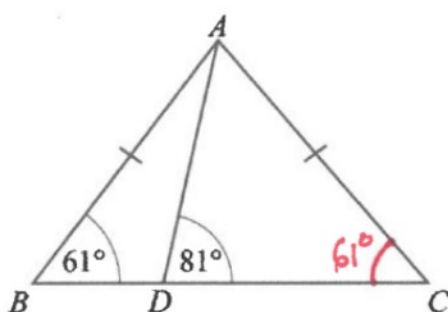
$$\hat{ABC}: 180 - 50 = \underline{130}$$

$$180 - 130 = 50$$

$$50 \div 2 = 25^\circ$$

$x = \underline{25^\circ}$ [2]

- 4 The diagram shows two triangles, ABD and ADC .



NOT TO
SCALE

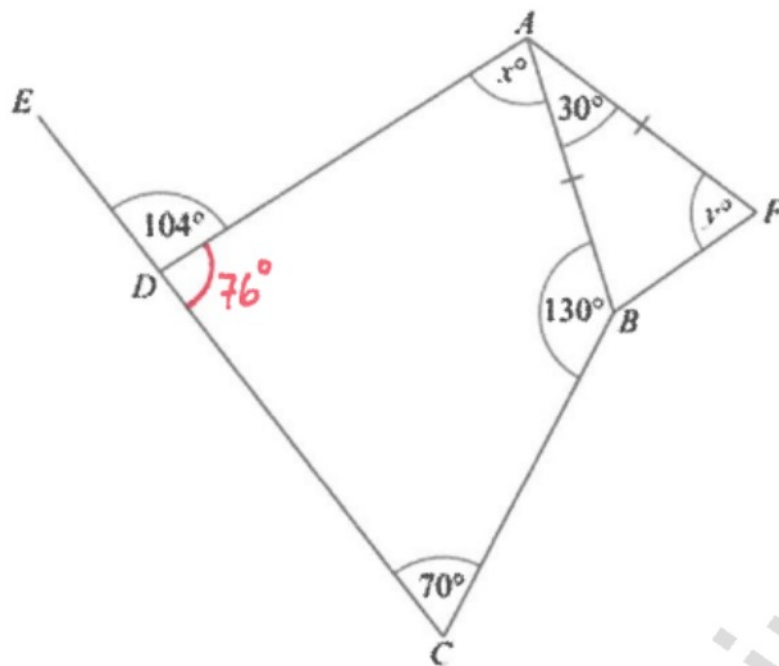
BDC is a straight line, $AB = AC$, angle $ABD = 61^\circ$ and angle $ADC = 81^\circ$.

Work out angle DAC .

ΔABC : ABC is isosceles, so $\hat{A}BC = \hat{A}CB = 61^\circ$

ΔADC : $81 + 61 = 142$
 $180 - 142 = 38^\circ$

Angle $DAC = 38^\circ$ [2]



$ABCD$ is a quadrilateral.
 CDE is a straight line.
 AFB is an isosceles triangle.

Find the value of x and the value of y .

$\text{ADC: } 180 - 104 = 76^\circ$

$$130 + 70 + 76 = 276$$

$$360 - 276 = 84^\circ$$

$$\underline{x = 84^\circ}$$

$\text{Triangle: } 180 - 30 = 150$

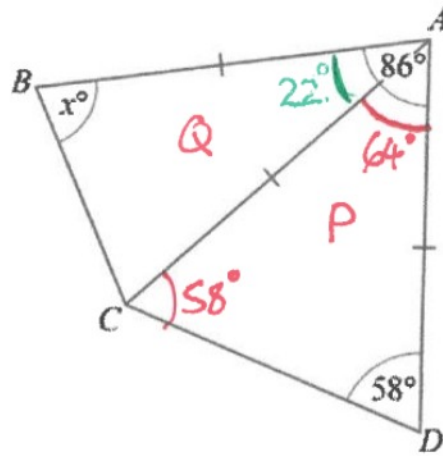
$$150 \div 2 = 75^\circ$$

$$\underline{y = 75^\circ}$$

$$x = \underline{84^\circ}$$

$$y = \underline{75^\circ}$$

[4]



NOT TO
SCALE

Triangle ABC and triangle ACD are isosceles.
Angle $DAB = 86^\circ$ and angle $ADC = 58^\circ$.

Find the value of x .

Triangle P: $\hat{ADC} = \hat{ACD} = \underline{58^\circ}$

$$58 + 58 = 116$$

$$\hat{CAD} = 180 - 116$$

$$= \underline{64^\circ}$$

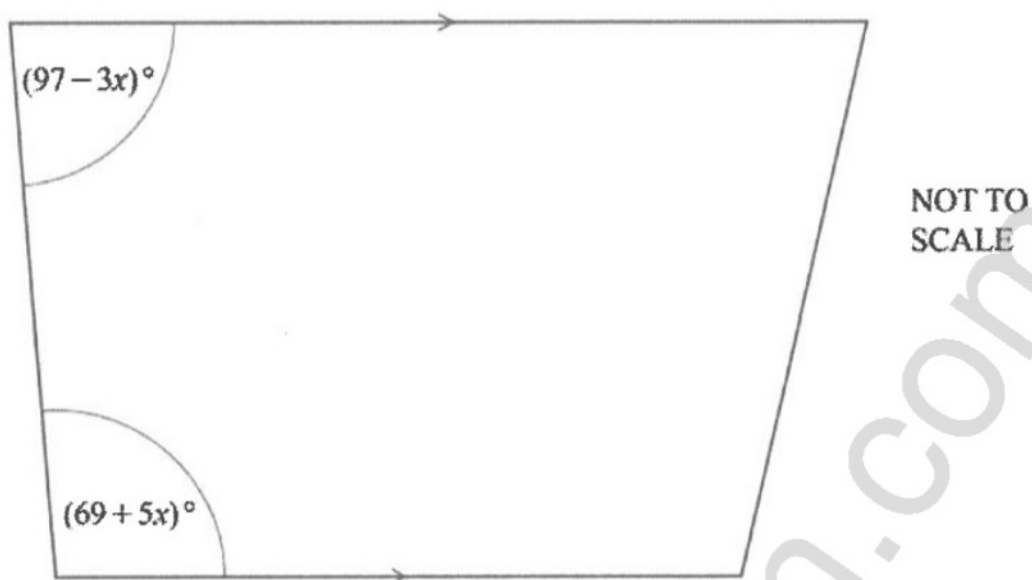
Triangle Q: $\hat{CAB} = 86 - 64$
 $= \underline{22^\circ}$

$$180 - 22 = 158$$

$$158 \div 2 = \underline{79^\circ}$$

$$x = \underline{79^\circ} \quad [3]$$

- 6 The diagram shows a trapezium.



Work out the value of x .

Co-interior angles sum to 180° :

$$97 - 3x + 69 + 5x = 180$$

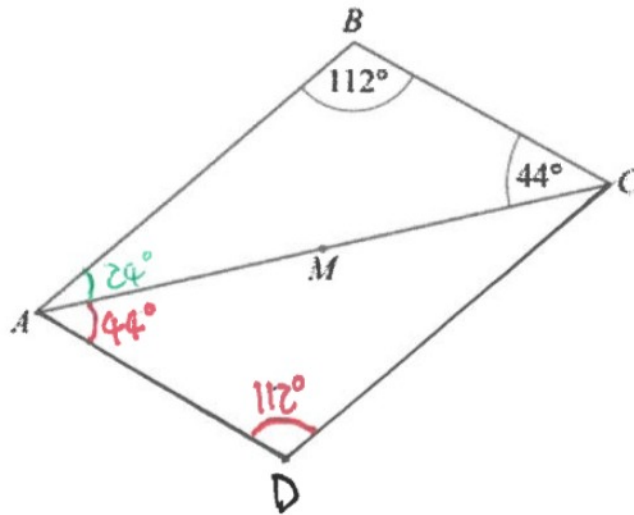
$$166 + 2x = 180$$

-166

$$2x = 14$$

$$\underline{x = 7}$$

$$x = \underline{7} \quad [3]$$



NOT TO
SCALE

The diagram shows triangle ABC .
 M is the midpoint of AC .

Triangle ABC is rotated 180° about centre M .
The image and the original triangle together form a quadrilateral $ABCD$.

(a) Write down the mathematical name of the quadrilateral $ABCD$.

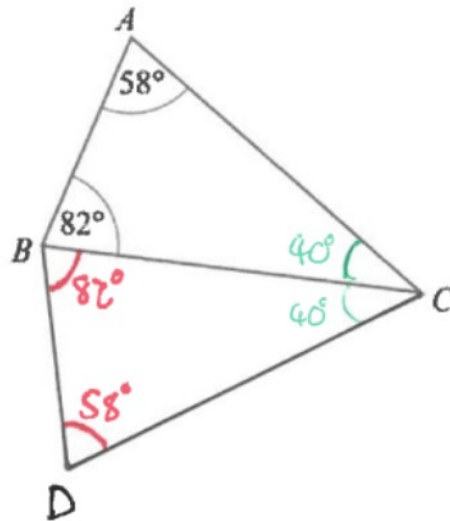
Parallelogram [1]

(b) Find angle BAD .

$$\begin{aligned} \hat{BAC}: \quad 112 + 44 &= 156 \\ 180 - 156 &= \underline{24} \end{aligned}$$

$$\hat{BAD} = 44 + 24 = \underline{68^\circ}$$

Angle $BAD = \underline{68^\circ}$ [2]



NOT TO
SCALE

The diagram shows triangle ABC .

The triangle is reflected in the line BC to give a quadrilateral $ABDC$.

(a) Write down the mathematical name of the quadrilateral $ABDC$.

Kite

[1]

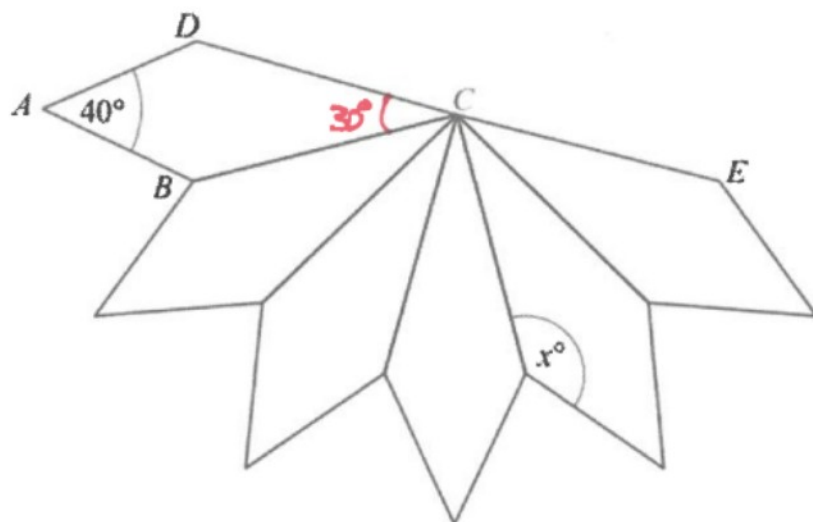
(b) Find angle ACD .

$$\hat{ACB}: 58 + 82 = 140$$

$$180 - 140 = \underline{40}$$

$$\hat{ACD} = 40 + 40 \\ = \underline{80}$$

Angle $ACD = \underline{80^\circ}$ [2]



NOT TO
SCALE

The diagram shows 5 kites that are congruent to kite $ABCD$.
Each kite is joined to the next kite along one edge.
Angle $DAB = 40^\circ$ and DCE is a straight line.

Find the value of x .

DCE is a straight line and the kites are all the same. Can use this to find the small angle in the kites (DCB):

$$DCB = \frac{180}{6} = \underline{30^\circ}$$

$\nwarrow$ 6 kites

$$x = \underline{145^\circ} \quad [3]$$

Find other two angles in kite:

$$40 + 30 = 70$$

$$360 - 70 = 290$$

$$290 \div 2 = \underline{145^\circ}$$