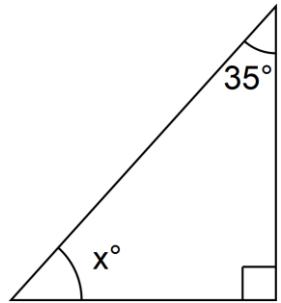
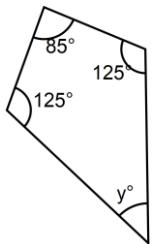


Problem 5

Calculate x

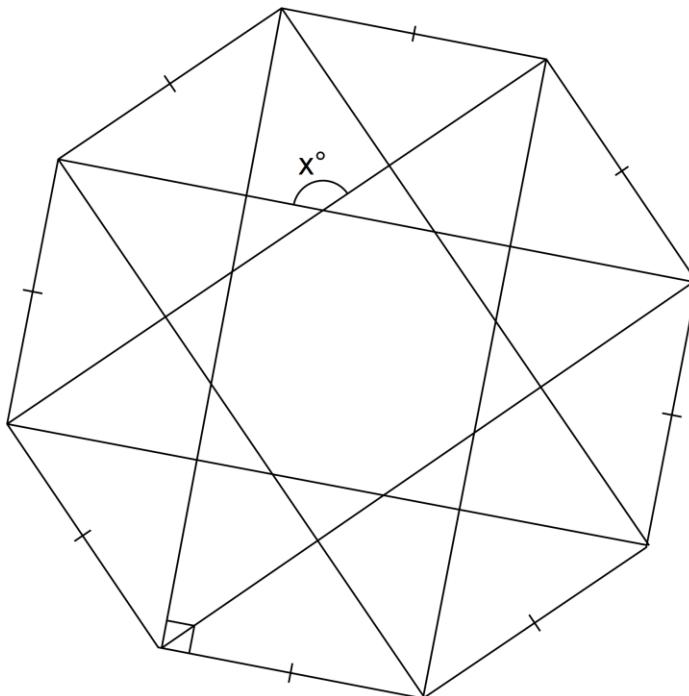


Calculate y



Calculate the sum of the interior angles in a 5 sided polygon

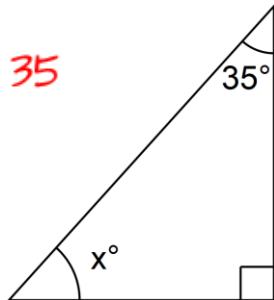
Calculate x



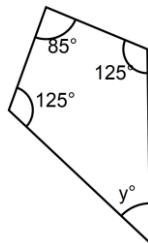
Problem 5

Calculate x

$$180 - 90 - 35 \\ = 55^\circ$$



Calculate y



$$360 - 125 - 125 - 85 \\ = 25^\circ$$

Calculate the sum of the interior angles in a 5 sided polygon

$$180 \times 3 \\ = 540^\circ$$

Calculate x

Interior angle of a regular octagon
 $(180 \times 6)/8 = 135$

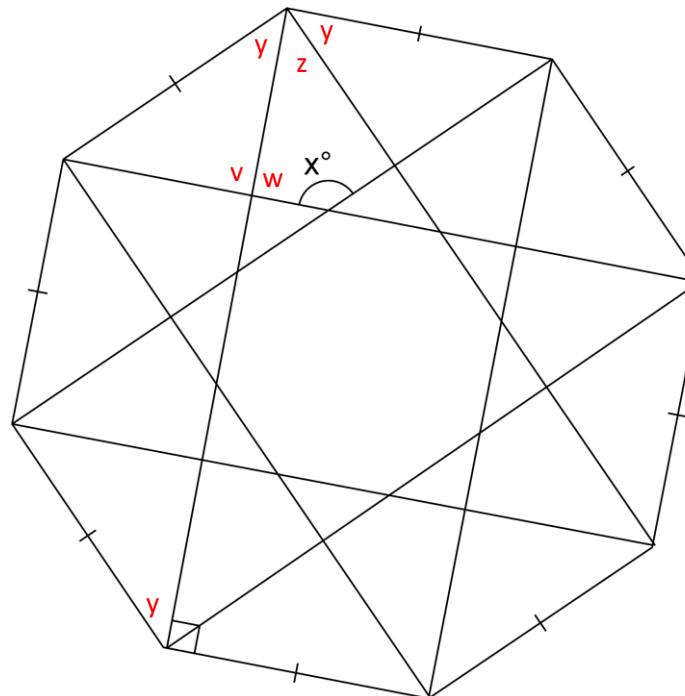
$$x = 135^\circ$$

$$y = 135 - 90 \\ = 45^\circ$$

$$z = 135 - 45 - 45 \\ = 45^\circ$$

$$w = (360 - 135 - 45)/2 \\ = 90^\circ$$

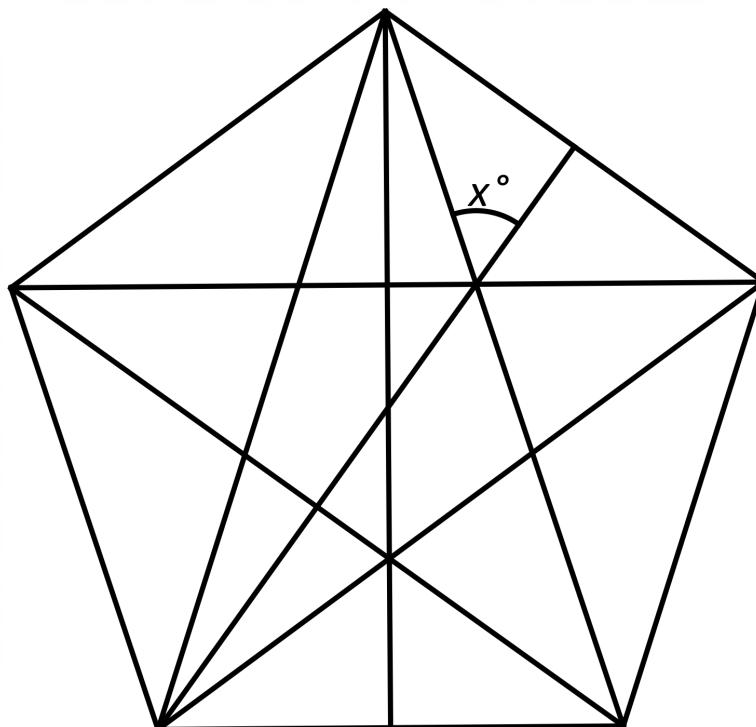
$$w = 180 - 90 \\ = 90^\circ$$



PROBLEM 5A

The polygon is a regular pentagon.

Calculate x



PROBLEM 5A

The polygon is a regular pentagon.

Calculate x

5 sided regular polygon
 $(5 - 2) \times 180^\circ \div 5 = 108^\circ$

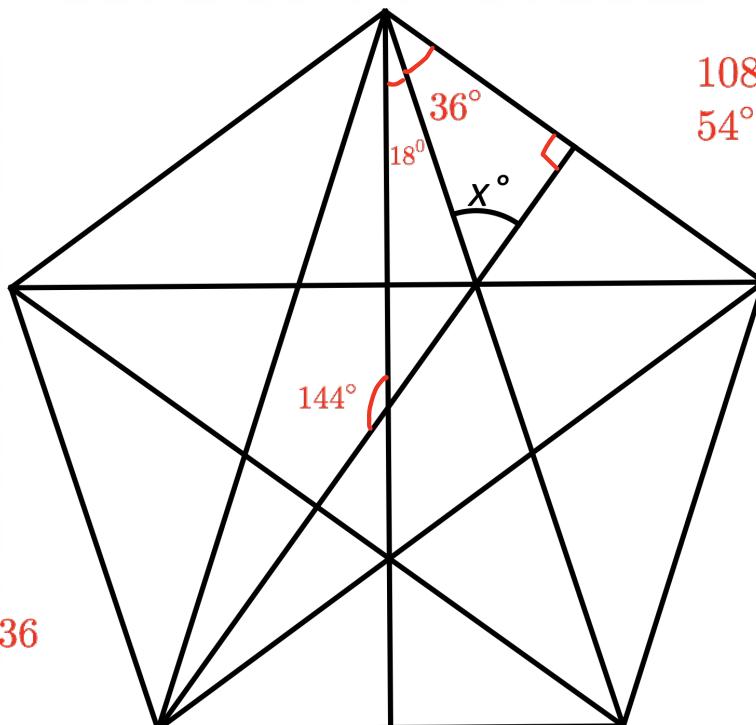
$$108 \div 2 = 54^\circ$$
$$54^\circ - 18 = 36^\circ$$

$$180 - 90 - 36 = 54^\circ$$

$$x = 54^\circ$$

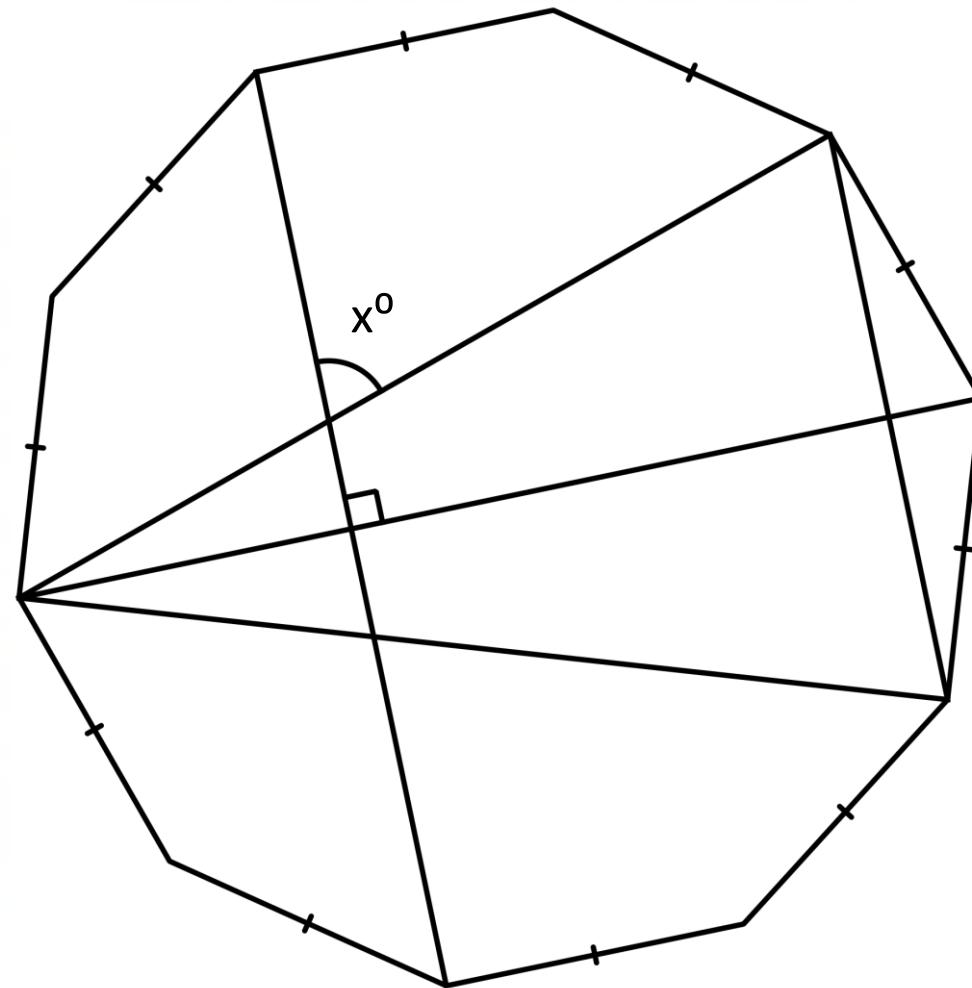
$$360 \div 5 \times 2 = 144^\circ$$

$$180 - 144 = 36$$
$$36 \div 2 = 18^\circ$$



PROBLEM 5B

Calculate x



PROBLEM 5B

Calculate x

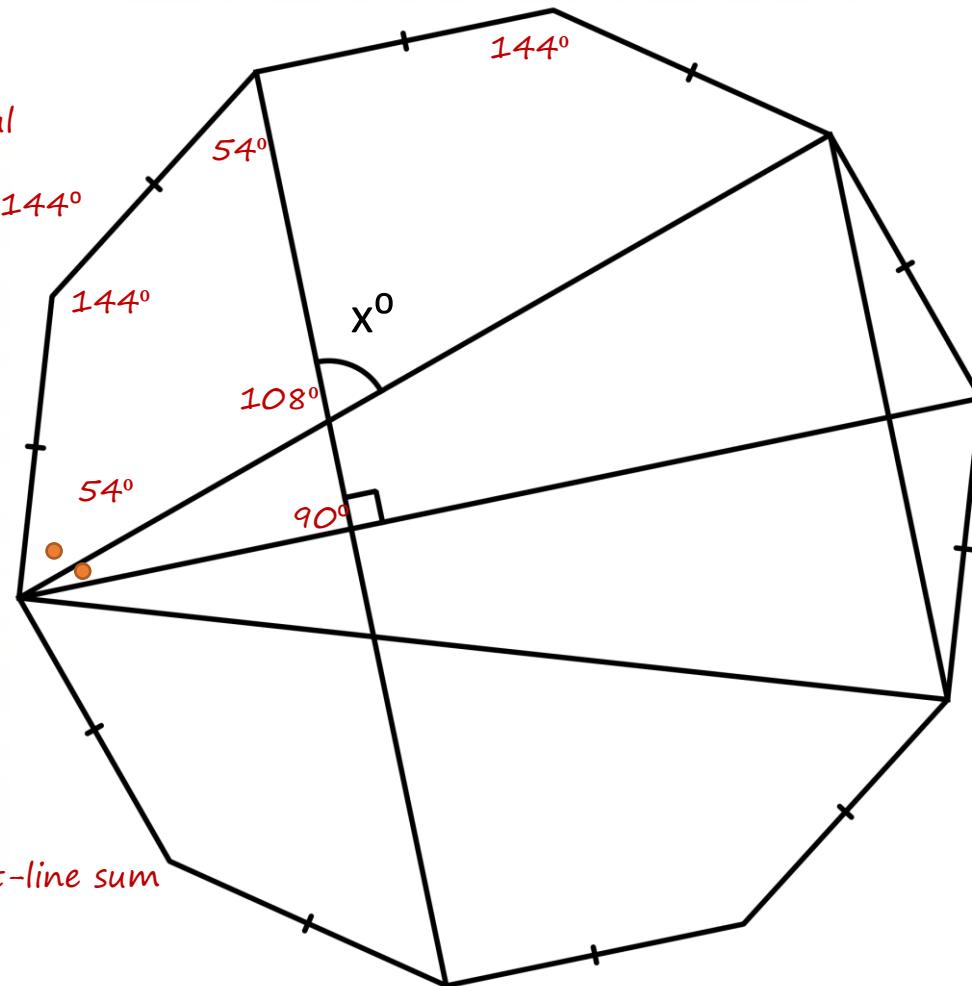
$$144^\circ \div 2 = 72^\circ$$

360 in a quadrilateral

$$360^\circ - 90^\circ - 72^\circ - 144^\circ = 54^\circ$$

10 sided polygon

$$\text{Interior angle} = (10-2) \times 180 \div 10 = 144^\circ$$



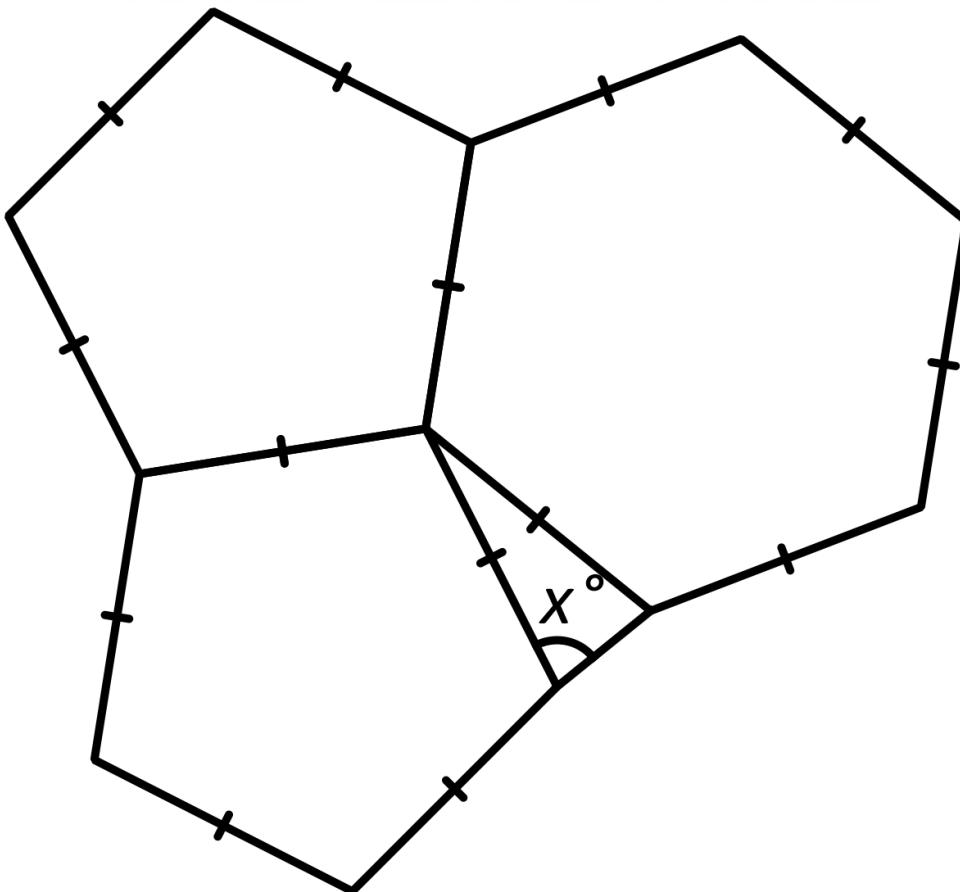
$$144^\circ \div 2 = 72^\circ$$

Angles on a straight-line sum to 180°

$$x + 108^\circ = 180^\circ \quad x = 72^\circ$$

PROBLEM 5C

Calculate x



PROBLEM 5C

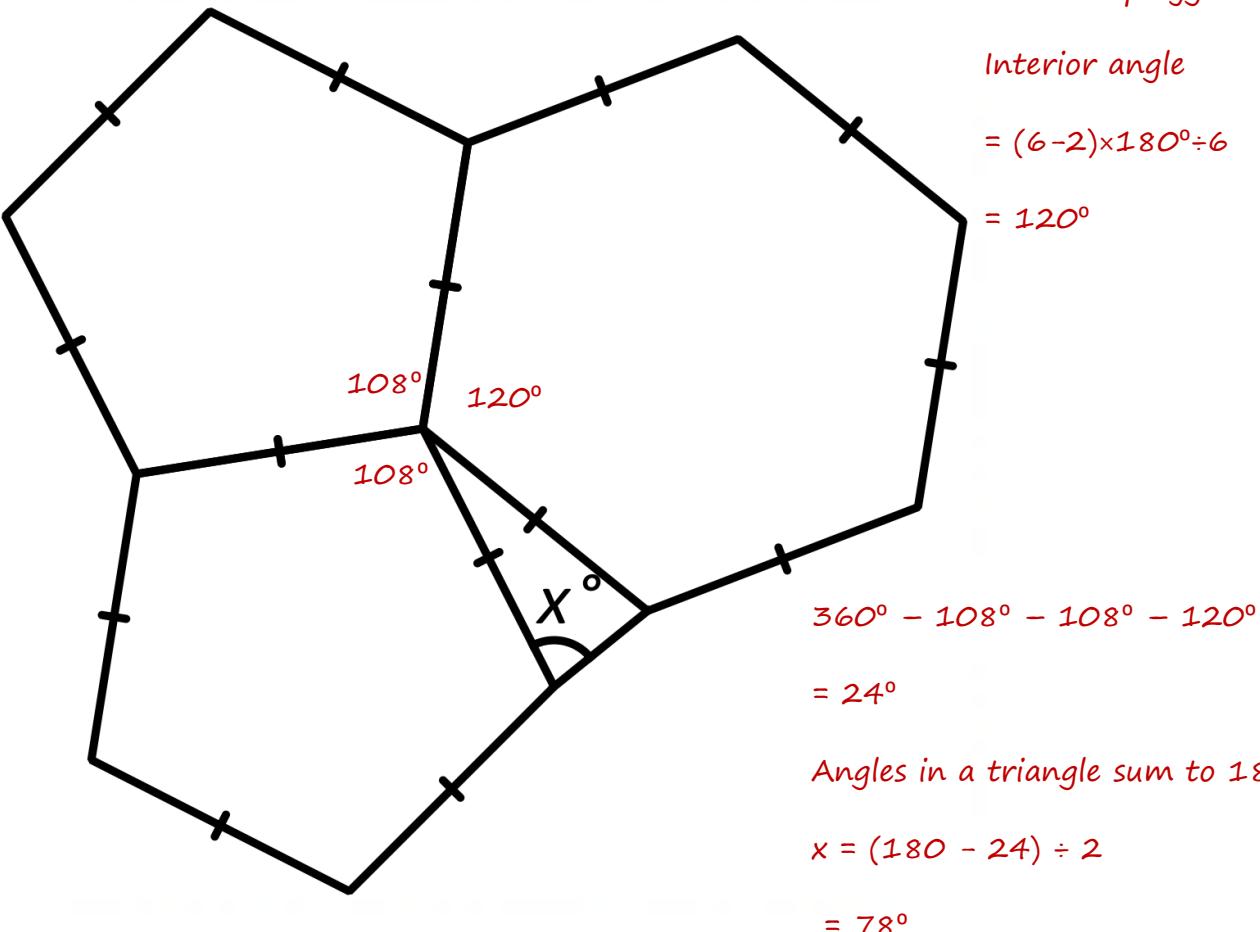
Calculate x

Five sided polygon

Interior angle

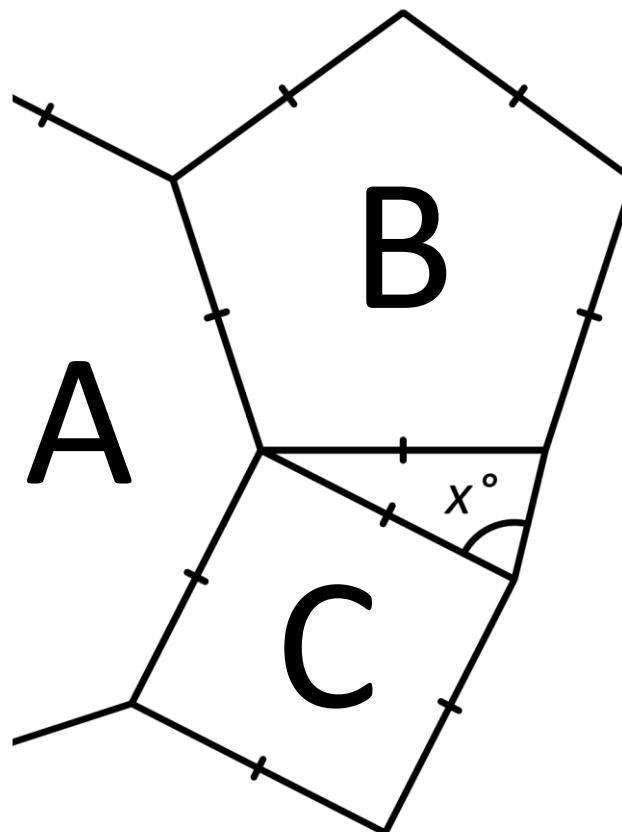
$$= (5-2) \times 180^\circ \div 5$$

$$= 108^\circ$$



PROBLEM 5D

If angle $x = 79^\circ$, how many sides does the regular polygon A have?



PROBLEM 5D

If angle $x = 79^\circ$, how many sides does the regular polygon A have?

Five sided polygon

Interior angle

$$= (5-2) \times 180^\circ \div 5$$

$$= 108^\circ$$

$$Z = 360^\circ - 108^\circ - 90^\circ - 22^\circ$$

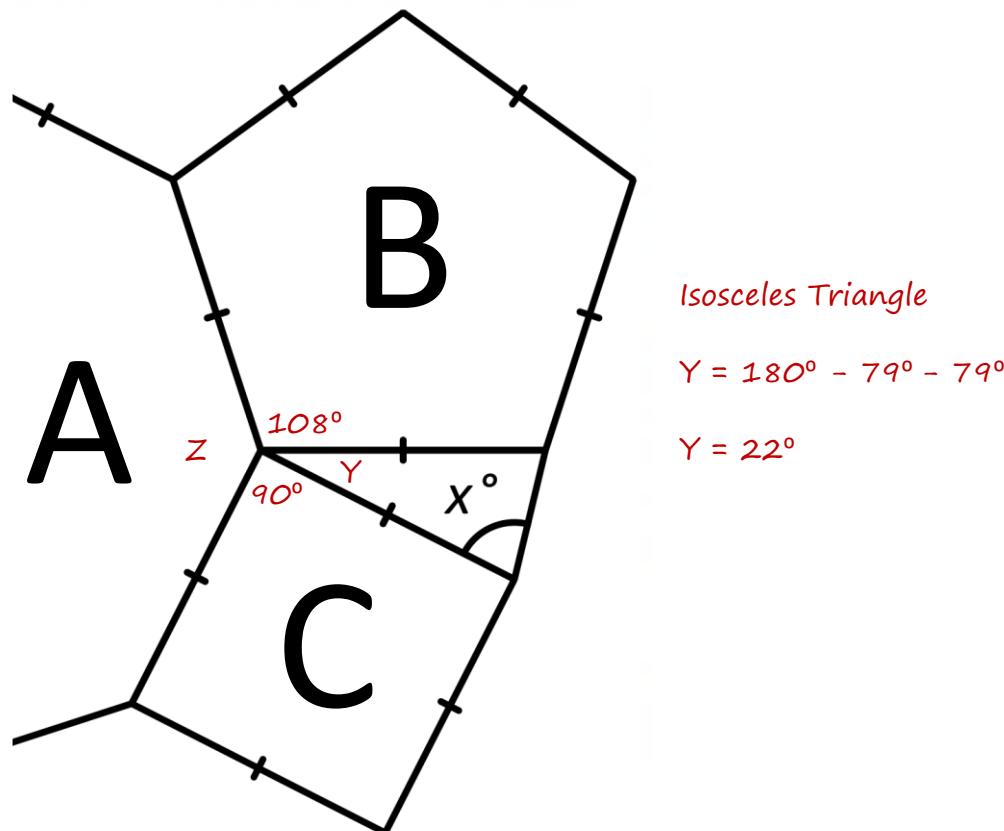
$$= 142^\circ$$

Interior angle = 140°

Exterior angle : $180^\circ - 140^\circ = 40^\circ$

$$360^\circ \div 40 = 9$$

9 sided polygon



Isosceles Triangle

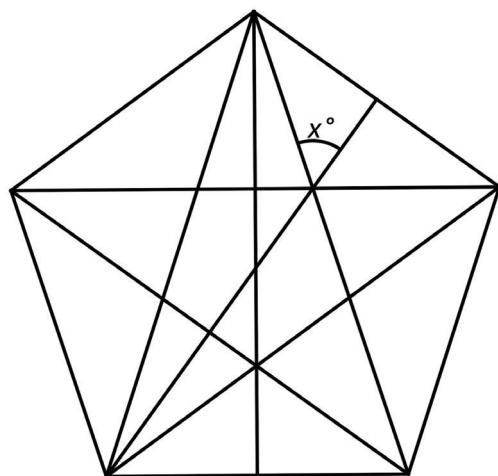
$$Y = 180^\circ - 79^\circ - 79^\circ$$

$$Y = 22^\circ$$

PROBLEM 5A

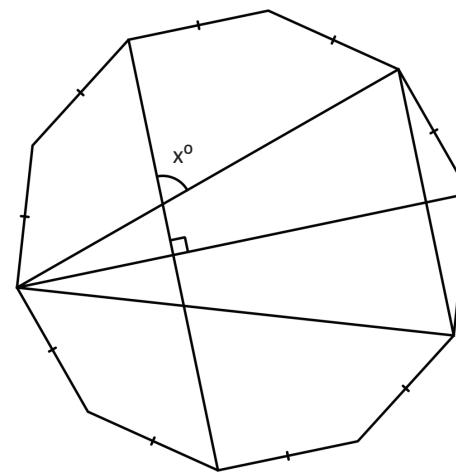
The polygon is a regular pentagon.

Calculate x



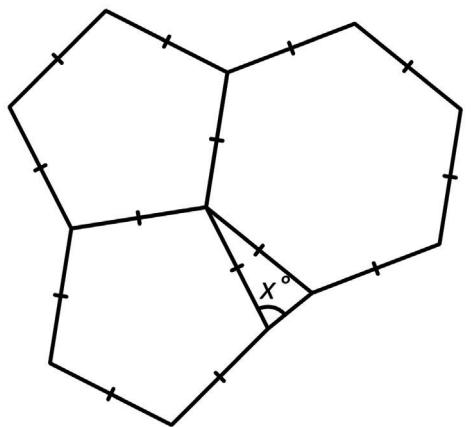
PROBLEM 5B

Calculate x



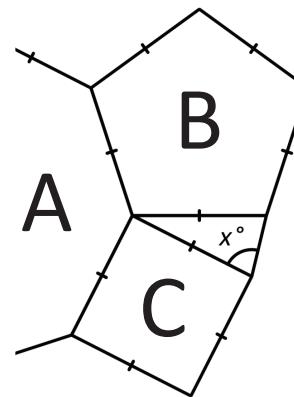
PROBLEM 5C

Calculate x



PROBLEM 5D

If angle $x = 79^\circ$, how many sides does the regular polygon A have?

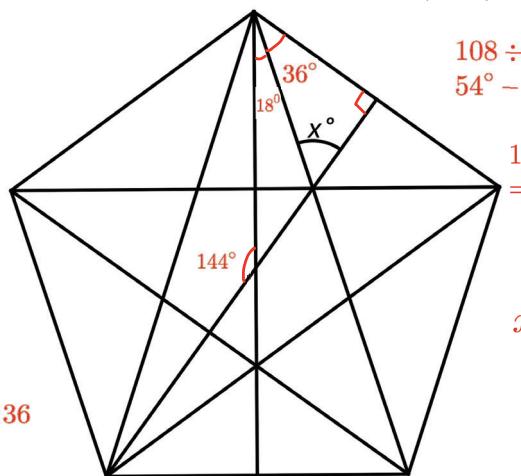


PROBLEM 5A

The polygon is a regular pentagon.

5 sided regular polygon
 $(5 - 2) \times 180^\circ \div 5 = 108^\circ$

Calculate x



$$\begin{aligned} 360 \div 5 \times 2 &= 144^\circ \\ 180 - 144 &= 36^\circ \\ 36 \div 2 &= 18^\circ \end{aligned}$$

$$\begin{aligned} 108 \div 2 &= 54^\circ \\ 54^\circ - 18^\circ &= 36^\circ \\ 180 - 90 - 36 &= 54^\circ \end{aligned}$$

$$x = 54^\circ$$

PROBLEM 5B

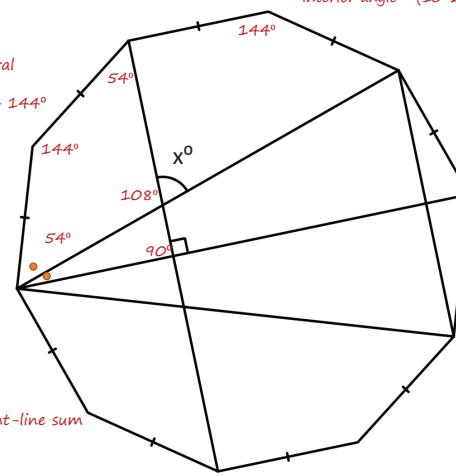
Calculate x

10 sided polygon
 $Interior\ angle = (10 - 2) \times 180^\circ \div 10 = 144^\circ$

$$144^\circ \div 2 = 72^\circ$$

360 in a quadrilateral

$$\begin{aligned} 360^\circ - 90^\circ - 72^\circ - 144^\circ \\ = 54^\circ \end{aligned}$$



$$144^\circ \div 2 = 72^\circ$$

Angles on a straight-line sum to 180°

$$x + 108^\circ = 180^\circ \quad x = 72^\circ$$

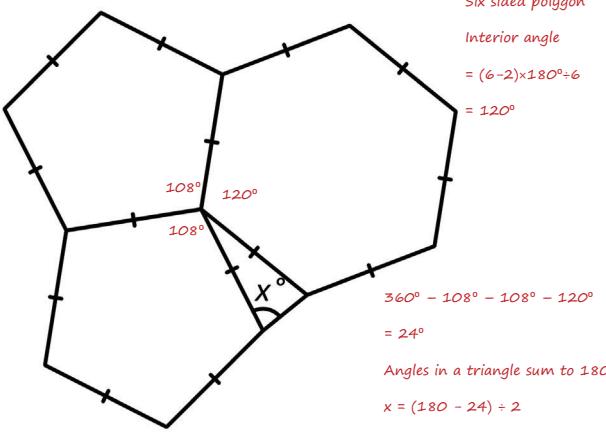
PROBLEM 5C

Calculate x

$$\begin{aligned} Five\ sided\ polygon \\ Interior\ angle \\ = (5 - 2) \times 180^\circ \div 5 \\ = 108^\circ \end{aligned}$$

Six sided polygon

$$\begin{aligned} Interior\ angle \\ = (6 - 2) \times 180^\circ \div 6 \\ = 120^\circ \end{aligned}$$



$$\begin{aligned} 360^\circ - 108^\circ - 108^\circ - 120^\circ &= 24^\circ \\ \text{Angles in a triangle sum to } 180^\circ \\ x = (180 - 24) \div 2 &= 78^\circ \end{aligned}$$

If angle x = 79° , how many sides does the regular polygon A have?

Five sided polygon

$$\begin{aligned} Interior\ angle \\ = (5 - 2) \times 180^\circ \div 5 \\ = 108^\circ \end{aligned}$$

$$\begin{aligned} Z = 360^\circ - 108^\circ - 90^\circ - 22^\circ \\ = 142^\circ \end{aligned}$$

$$\text{Interior angle} = 140^\circ$$

$$\begin{aligned} \text{Exterior angle} : 180^\circ - 140^\circ = 40^\circ \\ 360^\circ \div 40^\circ = 9 \\ 9 \text{ sided polygon} \end{aligned}$$

