

EQUITY

LEARNING PLACE

Elementary Math Topical (**Polygon**)

Question 1:

The angles, in degrees, of a quadrilateral $ABCD$ are represented by these expressions:

Angle $A = 80 - 4x$, angle $B = 10 + 3x$, angle $C = 5x + 90$ and angle $D = 15x - 10$.

- Calculate the value of x .
- What is the name of the quadrilateral?

Question 2:

Three of the exterior angles of an n -sided polygon are 37° , 47° and 73° while the remaining $(n - 3)$ exterior angles are each equal to 29° . Find the value of n .

Question 3:

The ratio of the interior angle of a regular polygon to its exterior angle is $8:1$. How many sides does the polygon have?

Question 4:

The size of each interior angle of a regular polygon is 6.5 times the size of each exterior angle. Calculate

- the size of each exterior angle
- the number of sides of the polygon
- the sum of all the interior angles of the polygon

Question 5:

- The exterior angle of a regular polygon is 15° each. Calculate the number of sides of the polygon.
- A polygon has n sides. Two of its interior angles are 82° and 125° while the remaining interior angles are 157° each. Calculate the value of n .

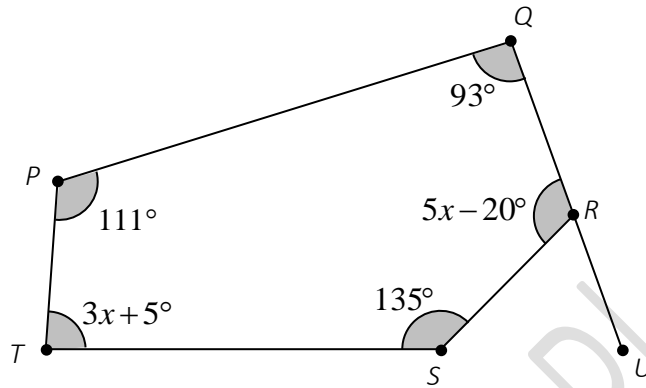
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Question 6:

The diagram below shows a polygon $PQRST$.

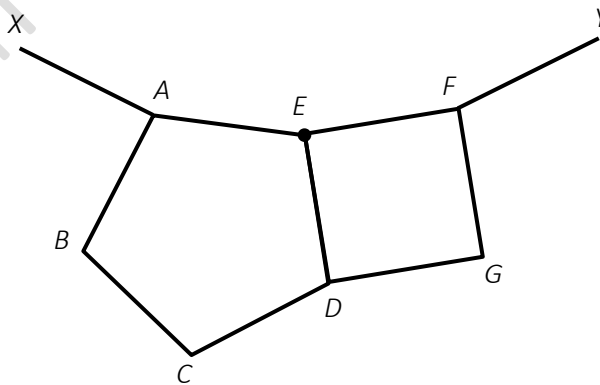


- Name this polygon
- Find the sum of the interior angles of the polygon $PQRST$.
- Find the value of x .

Question 7:

In the diagram, $ABCDE$ is a regular pentagon and $DEFG$ is a square. XA , AE , EF and FY are four sides of another regular polygon. The three polygons fit together at E .

Find the number of sides of the regular polygon with sides XA , AE , EF and FY .



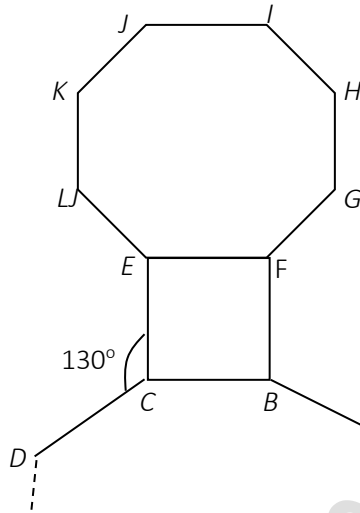
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Question 8:

The diagram below shows part of a regular n -sided polygon $ABCD\dots$, a square $BCEF$ and a regular octagon $EFGHIJKL$.

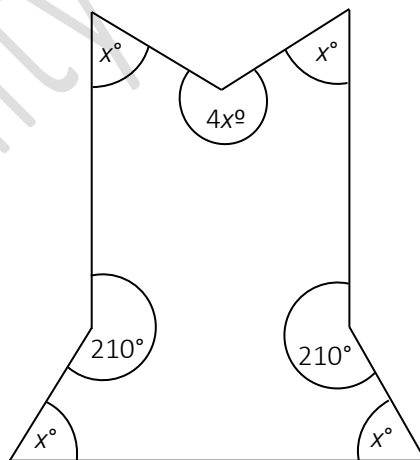


If $\angle ECD = 130^\circ$, calculate

- the size of the reflex angle $\angle LEC$
- the value of n .

Question 9:

A symmetrical polygon is shown below with all its interior angles labelled. Find the value of x .



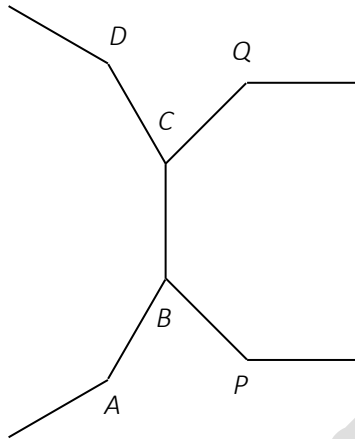
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Elementary Math Topical (Polygon)

Question 10:

The diagram below shows part of a regular 14-sided polygon $ABCD$ and part of a regular octagon $PBCQ$. They share a common line BC .

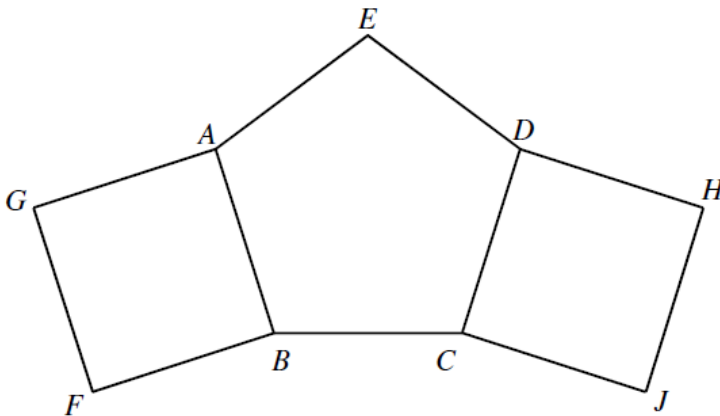


- Find obtuse $\angle ABC$,
- Find $\angle BPQ$
- Find $\angle ABP$.

Question 11:

In the diagram, $ABCDE$ is a regular pentagon. $ABFG$ and $CDHI$ are squares.

- Find obtuse angle FBC .
- Show that G, B and J do not lie on a straight line.



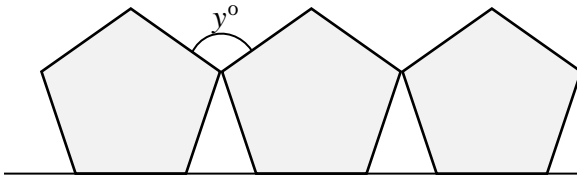
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Elementary Math Topical (Polygon)

Question 12:

The diagram shows three regular pentagons arranged on a straight line.

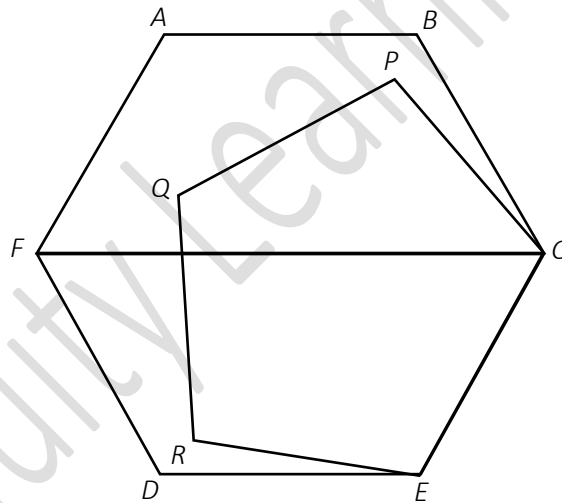


Find the value of

- a) x
- b) y

Question 13:

In the diagram below, $ABCDEF$ is a regular hexagon and $CPQRE$ is a regular pentagon.



Find

- a) angle ECP
- b) angle QPR
- c) Show that FC is parallel to AB .

