

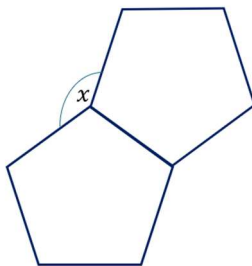
ANGLES IN POLYGONS

Task 1

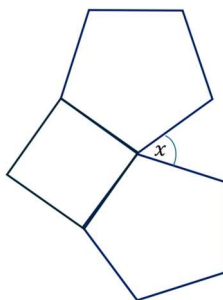
- 1) Find the size of each interior angle of a regular pentagon.
- 2) Find the size of each interior angle of a regular octagon.
- 3) Find the sum of interior angles of a decagon.
- 4) Work out the size of each interior angle of a regular 15-sided polygon.
- 5) Find the size of each exterior angle of a regular hexagon.
- 6) A regular polygon has exterior angles of 45° . How many sides does it have?
- 7) A regular polygon has 20 sides. Work out the size of each exterior angle.
- 8) A regular polygon has an exterior angle of 12° . Work out the size of the interior angle.
- 9) A regular polygon has interior angles of 150° . How many sides does it have?
- 10) A regular polygon has interior angles of 165° . Work out the number of sides it has.

Task 2 – Regular polygons are pictured in the diagrams below. For each of the following, work out the size of the missing angle x .

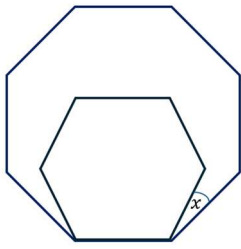
11)



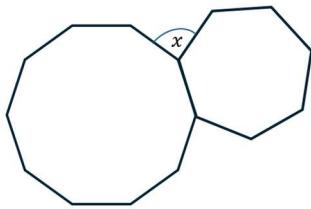
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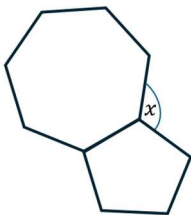
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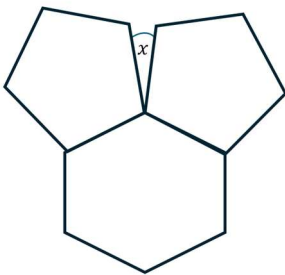
14)



15)



16)



Task 3

17) A pentagon is shown below. Work out the size of the missing angle x .

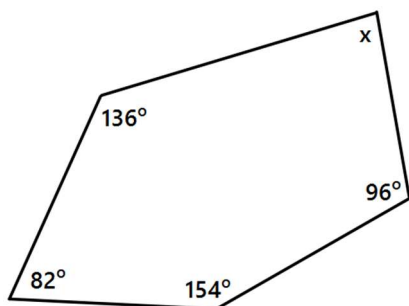
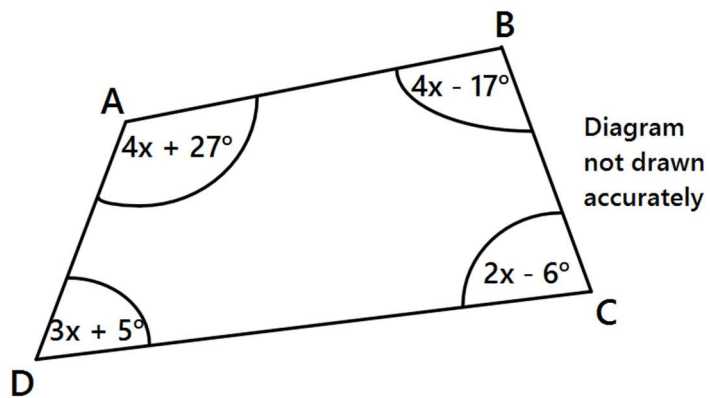
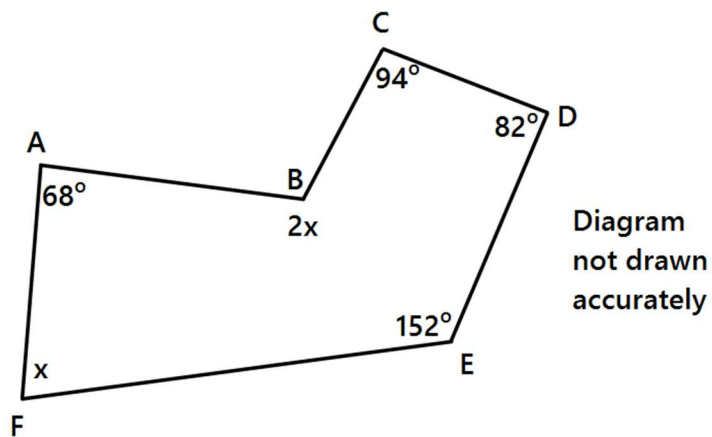


Diagram
not drawn
accurately

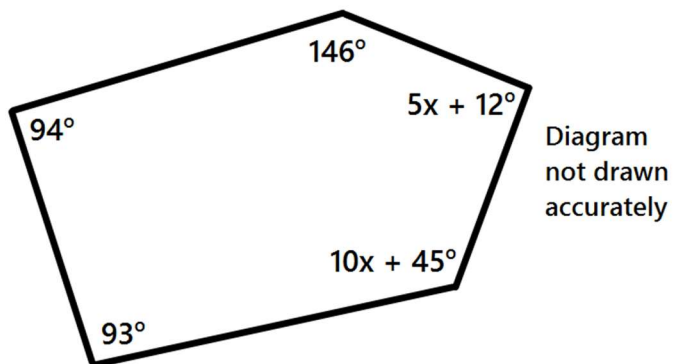
18) A quadrilateral ABCD is shown below. Work out the value of x .



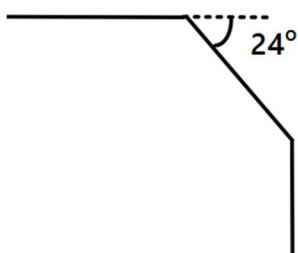
19) Hexagon ABCDEF is pictured below. Work out the size of the obtuse angle ABC.



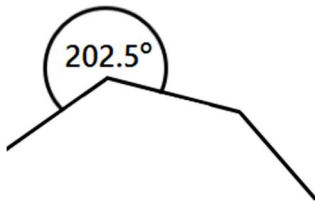
20) A pentagon is pictured below. Work out the value of x .



21) Part of a regular polygon is shown below. Work out the number of sides the polygon has.



22) Part of a regular polygon is shown below. Work out the number of sides the polygon has.



Task 4

23) A pentagon has angles in the ratio $2 : 3 : 4 : 4 : 5$. Work out the size of the largest angle.

24) A heptagon has six angles of 130° and one unknown angle x . Find x .

25) A pentagon has four angles of 100° and one angle x . Find x .

26) A quadrilateral has three right angles. Find the size of the fourth angle.

27) The exterior angles of a polygon are in the ratio $1 : 2 : 3 : 4 : 5$. Find the number of sides and each exterior angle.

Challenge

28) An irregular pentagon is pictured below.

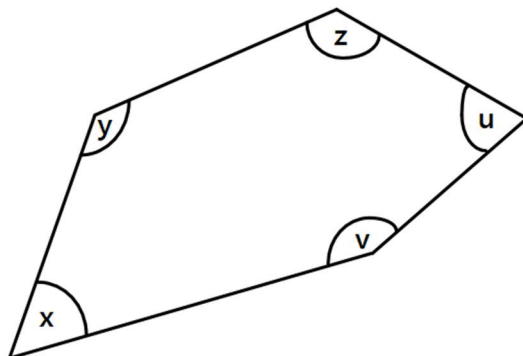


Diagram
not drawn
accurately

Angle $x =$ angle u

Angle $z = 125^\circ$

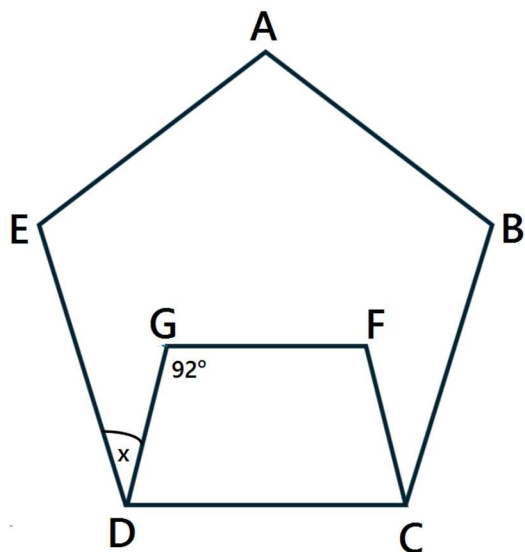
Angle v is three times the size of angle u

Angle y is 70° larger than the size of angle u

Work out the size of angle x .

29) A regular pentagon ABCDE is shown below.

Given that GFCD is a trapezium, work out the size of the angle marked x .



30) ABCDEFGHIJ is a 10-sided regular polygon, with centre O.

Given that KL is a straight line that is parallel to GF, work out the value of x .

