SHEET 1

PENANG SANGAM HIGH SCHOOL

P. O. BOX 44, RAKIRAKI

LESSON NOTES - 7

SCHOOL: PENANG SANGAM HIGH **SUBJECT: BASIC TECHNOLOGY** **YEAR/ LEVEL: 9A,B,C,D**

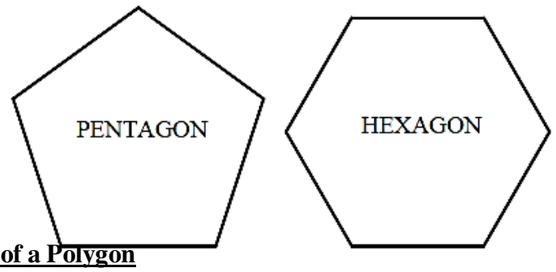
Strand	BT9.2: GEOMETRY
Sub - Strand	BT9.2.2 GEOMETRICAL CONSTRUCTIONS
Content Learning Outcome	BT9.2.2.2 Identify and develop skills in geometrical construction methods utilized in making various types of polygons.

POLYGONS

- A **polygon** is a 2-dimensional closed plane figure bounded by several lines that are joined together.
- Polygons may be regular or irregular.
- The centre of a polygon is obtained by bisecting any two internal angles.

REGULAR POLYGONS

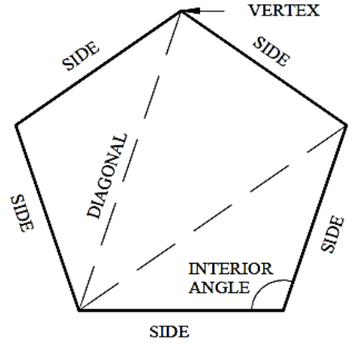
- Regular polygons have all equal angles and all sides are the same length.
- Regular polygons are both equiangular and equilateral.



REGULAR POLYGONS

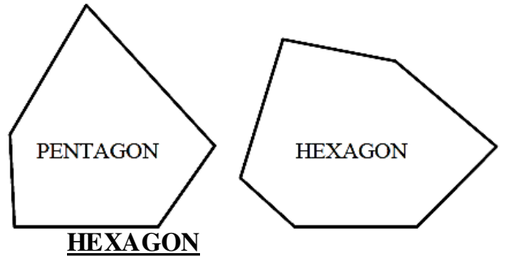
Parts of a Polygon

Side - one of the line segments that make up the polygon.
Vertex - point where two sides meet.
Diagonal - a line connecting two vertices that isn't a side.
Interior Angle - Angle formed by two adjacent sides inside the polygon.



IRREGULAR POLYGONS

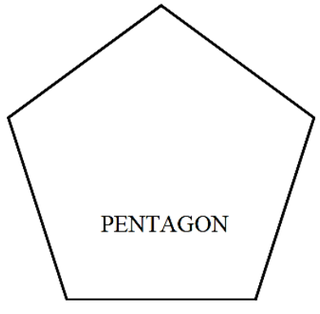
- Irregular polygons have one or more sides unequal and also one or more angles unequal.
- Irregular polygons are neither equiangular nor equilateral.



IRREGULAR POLYGONS

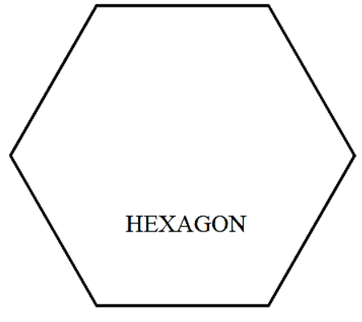
PENTAGON

- A regular pentagon is bounded by five equal sides.
- All the interior angles add up to 540°.
- All angles are the same -108°.



HEXAGON

- A regular hexagon has six equal sides.
- All the interior angles add up to 720°.
- All angles are the same -120°.

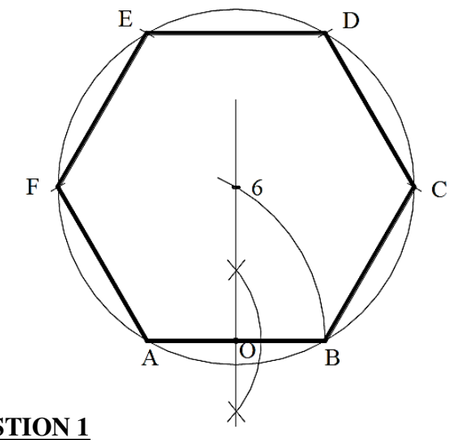


SHEET 2

WORKED EXAMPLE 1

To construct a regular hexagon on the given base.

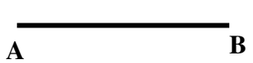
1. Bisect the base AB to find the bisector and point O.
2. Using radius AB from centre A, draw an arc to find point 6 on the bisector.
3. With centre 6 radius A6, draw an arc to pass through A and B.
4. Take side AB and step off on the circumference of the circle.
5. Join the points to form the regular hexagon.



QUESTION 1

Given: Side AB

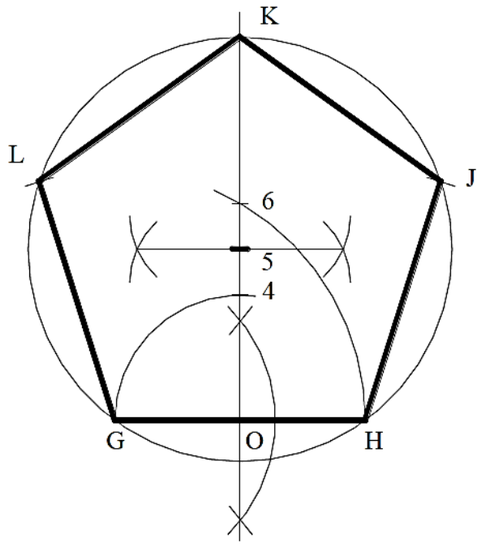
Required: Construct a regular pentagon ABCDE



WORKED EXAMPLE 2

To construct any regular pentagon, given the base

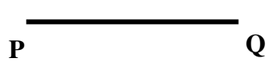
1. Bisect the base GH to find point O.
2. Using radius GH from centre G, draw an arc to find point 6 on the bisector
3. Using radius OH from centre O, draw an arc to find point 4 on the bisect
4. Bisect points 4 and 6 and label it as 5.
5. With centre 5 radius G5, draw a circle to pass through G and H.
6. Take side GH and step off on the circumference of the circle.
7. Join the points to form the regular pentagon.



QUESTION 2

Given: Side PQ

Required: Construct a regular pentagon PQRSTU



THE END