CONSTRUCTING ANGLES AND GEOMETRIC FIGURES CONSOLIDATED

Construct the following angles using a pencil, ruler and a pair of compasses only:-

1. Acute angles

i) 60^0 ii) 45^0 iii) $22\frac{1}{2}^0$ iv) 75^0 v) 30^0 vi) 15^0

2. Obtuse angles

i) 150^0 ii) 120^0. iii) 135^0 iv) 165^0

3. Reflex angles:

1) 225^0 2) 195^0 c) 240^0 d) 270^0

GEOMETRIC FIGURES

1. Using a pair of compasses, a ruler and a sharp pencil only, construct an equilateral triangle PQR where line PQ = PR = RQ =6cm.
2. Using a ruler, a sharp pencil and a pair of compasses, construct a scalene triangle ABC in which line AB = 7cm, BC = 5cm and CA = 3CM.
   a) Measure (i) angle CAB (ii) angle BCA.
3. Using a sharp pencil, a ruler and a pair of compasses only, construct an isosceles triangle LMN such that line LM = MN = 6cm and line LN = 7cm. Measure angle LNM.
4. Using a pair of compasses, a ruler and a pencil, construct a triangle XYZ in which line XY = XZ = 6cm and Z Y = 6.7cm.Drop a perpendicular from X to meet line segment ZY at O. Measure line XO and find the area of the triangle.
5. Using a ruler, a pencil and a pair of compasses only, construct a triangle WXY where line segment WX = 7cm, angle YWX = 45^0 and line segment WY = 6cm. Drop a perpendicular from Y to meet line segment WX at C.
   a) Measure line YC. b) Measure angle WXY.
6. Using a pencil, a ruler and a pair of compasses only, construct a triangle PQR such that line QR = 6cm, PQ = 5cm and angle PQR = 120^0.
   Measure angle PRQ.
7. Using a pair of compasses, a ruler and a sharp pencil only, construct a triangle TSR in which line segment TS 8cm, angle STR = 45^0, and line TR = 6.5cm.
   (i) Measure line SR. (ii) angle TSR.
8. Using a pair of compasses, a ruler and a sharp pencil, construct a triangle ABC where line segment AB = 6.0cm, angle B = 60^0 and angle A = 45^0. Drop a perpendicular line from C to meet XY at m. Measure line CM.

9. Using a pair of compasses, a pencil and a ruler only, construct a triangle XYZ in which line XY = 7cm, angle XYZ = 105^0 and angle YXZ = 30^0.Measure the length of line segment XZ in cm.
10. Using a ruler, a pencil and a pair of compasses only, construct a triangle CHL in which line CH = 7cm, angle CLH = 60^0 and angle HCL = 90^0. Measure the length line segment HL in cm.
11. Using a pair of compasses, a ruler and a pencil only, construct a triangle MNO such that angle M = 60^0, angle N = 75^0 and line MN = 7cm. Measure line NO.
12. Using a pair of compasses, a pencil and a ruler only, construct a regular quadrilateral PQRS such that line segment PQ = 5cm. Measure the length of the diagonal QS.
13. Using a pencil a ruler and a pair of compasses only, construct a square ABCD where the diagonals AC = BD = 4cm. Measure the length of each side.
14. Using a ruler, a pencil and a pair of compasses only, construct a rectangle RSTU in which line RS = 7cm and ST = 4cm. Measure the length of diagonal SU.
15. Using a pair of compasses, a ruler and a pencil only, construct a rectangle ABCD such that line AB = 8cm and BC = 6cm. Measure the length of diagonal BD.
16. Using a ruler, a pencil and a pair of compasses only, construct a rhombus RSTU where angle S = 60^0 and line ST = 6cm. Drop a perpendicular line from R to meet ST at O. Measure the angle TRU.
17. Using a pencil, a ruler and a pair of compasses only, construct a rhombus PQRS in which line PQ = QR = RS = SP = 4cm and angle PQR = 45^0. Measure the length of the diagonal QS.
18. Using the pair of compasses, a ruler and a pencil only, construct a rhombus ABCD such that angle ABC = 120^0 and line AB is 5.5cm.
    a) Measure the longer diagonal.
    b) Work out the perimeter of the figure.
19. Using a pair of compasses, a pencil and a ruler only, construct a rhombus KLMN of side 5cm with diagonals KM = 8cm and LN = 6cm.
20. Using a pair of compasses, a ruler and a pencil only, construct a parallelogram ABCD such that line AB = 7.8cm, BC = 6cm and angle ABC = 135^0. Measure the length of diagonal AC.
21. Construct a regular pentagon ABCDE in a circle of radius 4cm. Measure the length of each side and angle CDE.
22. Construct a regular pentagon and measure the length of each side.

23. Construct a regular hexagon of side 5cm. Measure the length of the side.

24. Construct a trapezium ABCD where <DAB = <ABC = 60^0 and line CB = 6cm
    a) Measure line DC b) Find the area of the trapezium above.
25. Construct a quadrilateral ABCD where AB = 8cm, angles DAB = ABC= 45^0 and line AD = BC = 4cm. Drop a perpendicular line from C to meet AB at x.
    (i) Measure line CX (ii) Calculate the area of the above quadrilateral.
26. Using a pair of compasses, a ruler and a pencil only, construct a quadrilateral PQRS where PQ = 8cm, QR = PS = 5cm and angle PQR = SPQ = 60^0.
27. Construct a trapezium SPQR where PQ = 7cm, PS = 5cm, angle SPQ = 90^0 and angle PQR = 45^0. Measure lines SR and QR.
28. Construct a trapezium PQRS where PQ = 8cm, angle QPS = 60^0, PS = 6cm, angle PQR = 90^0 and PQ is parallel to RS.
29. Using a ruler, pencil and a pair of compasses only, construct a kite RSTU of diagonal RT = 7cm and OS = 4cm then OU = 8cm, O being the Centre at which the diagonals meet.
30. Using a ruler, pencil and a pair of compasses only, construct a Kite KLMN where diagonal KM is the ratio of 2:2 cm respectively and NL is in the ratio of 3:7 in cm respectively.