REVISION QUESTIONS ON CONSTRUCTION

TRIANGLES

1. Construct a triangle **PQR** in a circle of radius 4cm.
   b) Measure angle **PRQ**
   c) Calculate its perimeter
2. Construct a circle of radius 4.3cm with a centre O. Use the same radius to mark six arcs along its circumference. Join arcs to form a triangle JKL.
   b) Measure angle OJK
3. Using a ruler, a pencil and a pair of compasses only, construct a triangle **ABC** in a circle of diameter 6cm
4. Use a pair if compasses, a ruler and a sharp pencil only, construct an equilateral triangle in a circle whose radius is 3.8cm
5. Using a ruler, a pair of compasses and a pencil only, construct a regular three sided polygon in a circle of diameter 8.8cm.
   b) Measure the sides of the triangle and calculate its perimeter
6. Using a ruler, a pencil and a pair of compasses only, construct a triangle such that line PQ = QR = RP = 5cm.
   b) Using a protractor, measure the size of angle RQP in degrees
7. Construct an isosceles triangle **XYZ** in which **XY** = 5cm and line **YZ** = **XZ** = 6cm
   b) Measure angle **ZXY**
8. Construct a triangle **UVW** such that line **UV** = 8cm, **VW** = 10cm and **UW** = 6cm.
   b) Measure the size of angle **WUV**
9. Using a sharp pencil, a ruler and a pair of compasses only, construct a triangle **PQR** with PQ = 6cm, QP = 4cm and PR = 5cm
   b) Measure the size of angle RPQ

Constructing a triangle given two sides and an angle

1. With a help of a ruler, a pencil and a pair of compasses only, construct a triangle **EFG** such that **EF** = 7cm, and angle **FEG** = 60^0 and **EG** = 5cm
   b) What is the size of angle **GFE**?
2. Using a ruler, a pencil and a pair of compasses only, construct a triangle **RSP** in which line **RS** = 5cm, angle **RSP** = 120^0 and line **SP** = 4cm
   b) Measure size of angle PRS
3. Construct an isosceles triangle **XYZ** such that line XY = XZ = 6cm and angle YXZ = 90^0
   b) What is the size of angle XYZ?
4. With the help of a ruler, a pencil and a pair of compasses only, construct a triangle **ABE** where angle **BAE** = 75^0, line **AB** =

6.3cm and line **BE** = 8cm
b) Measure line AE
c) Measure angle **ABE**

5. Using a ruler, a pencil and a pair of compasses only construct a triangle **PQR** in which line **PQ** = 5.8cm, angle **PQR** = 60^0 and line **QP** = 7cm. Drop a perpendicular bisector from point **R** to meet line PQ at point K
b) Measure line RK
c) Using line RK as the height, find the area of the triangle PQR

Constructing triangle given two angles and one side

1. Using a pair of compasses, a ruler and a pencil only, construct a triangle **LMN** where line LM = 6cm, angle MLN
2. a) Using a pair of compasses, pencil and ruler only, construct triangle PQR where PQ = 7cm, angle QPR = 90^0 and angle PQR = 45^0 (4 mks)
b) Measure QR
3. A triangle **BAG** such that line **BA** = 4cm, angle **BAG** = 120^0 and line **AG** = 5cm. Extrapolate line BA using dotted line and drop a perpendicular line from point G to meet the extra polated line at point D
b) Measure line CD
C) Work out the area of the triangle BAG
4. A triangle **WXY** in which line WX = 4.5cm angle XWY = 105^0 AND LINE XY is twice WX
b) Measure angle WXY
5. A triangle STU such that line ST = 5.8cm, angle TSU = 60^0 and angle SUT = 75^0 .
b) Measure size of angle STU

CONSTRUCTING QUADRILATERALS (Square, Rectangle, Rhombus, Parallelogram, Trapezium Kite)

SQUARE

Construct the following squares

1. A square ABCD in a circle of radius 4cm
2. A square ABCD in which lines AB=BC=CD=DA=5cm and angle BAD = 90^0.
b) Measure length of diagonal BD
3. A square STUV such that line TU=6cm and angle STU=90^0
4. A square ABCD in which diagonals are AC=BD=7cm
b) Measure line AB
5. A square WXYZ of sides 5.5cm. Join point W to Y, X to Z and let the diagonals intersect at point O
b) Measure line OX.

RECTANGLE

Construct the following rectangles as instructed

1. A rectangle PQRS such that line PQ = 6.5cm, angle PQR= 90^0 and line QS=4cm
2. A rectangle EXYZ in which line EX=YZ=12cm, line XY=EZ=5cm and angle XEZ=90^0
   b) Measure length of line XZ
3. A rectangle ABCD in which line B=6cm, angle ABC=90^0 and line BC=4cm.
   b) Measure the length of diagonal A

RHOMBUS

Construct the following rhombus as instructed

1. A rhombus STUV in which line ST=TU=UV=VS=5cm and angle STU=120^0.
   b) Measure the length of line SU
   c) Measure the size of angle TSV
2. A rhombus ABCD such that line AB=6cm and angle BAD=105^0.
   b) Measure the shorter diagonal and angle CAB
3. A rhombus WXYZ such that diagonals WV=6cm and XZ=8cm
   b) Measure line WX and calculate the perimeter of the rhombus
4. A rhombus EFGH of sides 5.5cm and angle HEF=45^0.
   b) Extrapolate line EF and drop a perpendicular line from point G to meet line EF at T
   c) Measure line GT
5. A rhombus ABCD such that line AB=6cm. Bisect line AB and let the bisector meet AB at H. Mark point D along line the bisector such that lines AD=AB. Complete the construction by joining points B and D to C.
   b) Measure line DH

PARALLELOGRAM

Construct the following Parallelogram as instructed

1. A parallelogram PQRSin which line PQ=6cm and line QR=4cm and angle PQR=120^0.
   b) Measure the length of diagonal QS
2. A parallelogram ABCD such that line AB=CD=8cm. Bisect line AB and let the bisector meet line AB at point R. Mark point D on the bisector such that line RD=3.5cm. Join point A to D and complete the construction of the parallelogram.
   b) Measure line BC and calculate the total distance around the figure.
3. A quadrilateral KLMN such that line KL=MN=6.5cm, line LM=KN=4cm and KLN=105^0.
   b) Measure the length of the longer diagonal LN
4. A parallelogram EFGH in which line EF=7.4cm, angle FEH=45^0 and line FG=5cm.

b) Measure the size of angle EFG in degrees.

5. A parallelogram JKLM such that line JK=5.5cm, angle KLM=120^0 and diagonal KM=10cm.
   b) Measure line JM

KITE

Construct the following lkites as instructed

1. A kite ABCD in which line AB=BC=6cm, line CD=DA=3cm and angle BAD=1120^0.
   b) Measure;
   i) line DB
   II) line AC
   III) angle DAC
2. A kite PQRS such that the longer diagonal SQ=12cm and the shorter diagonal PR = 6cm. Let the diagonals intersect at point O such that line OQ=OR=OP.
   b) Measure the size of angle OQR
3. A kite ABCE in which line AB=6.5cm, angle ABD=30^0 and BAD =105^0 and line BD is the longer diagonal.
   b) Measure line AD
   c) Join point A to C and measure line AC

REGULAR PENTAGON

Construct the following regular pentagon as instructed

1. A regular pentagon of interior angles having sides of 4cm
2. A regular pentagon of radius 6cm
3. A regular pentagon in a circle of diameter 8.8cm
4. A regular pentagon in a circle of radius 4cm
   b) Measure the length of one side.

REGULAR HEXAGON

Construct the following regular hexagon as instructed

1. A regular hexagon of side 4.5cm
2. A regular hexagon in a circle of radius 3.5cm
   b) Find the perimeter of the hexagon
3. A regular hexagon of sides 4cm in a circle.
   b) Measure the radius of the circl
   c) Draw a straight line through the centre of the circle connecting two vertices of the hexagon and measure the line
4. A regular hexagon in a circle whose diameter is 9cm

GENERAL EXERCISE

Construct the following as instructed using a ruler, a pencil and a pair of compasses only

1. a) A square ABCD of sides AB = 4.5cm

   b) (i) Join the diagonal $\overline{BC}$ and measure $\overline{BC}$

   (ii) Measure angle BAC

2. a) A rhombus PQRS with diagonal PR = 10cm and diagonal QS = 8cm (4 mks)

   b) Measure line PQ (1 mk)

3. a) A triangle PQR in which line PQ = 6cm and angle PQR = 45^0 and angle RPQ = 60^0 (4 mks)

   b) Measure line PR

4. a) A triangle ABC where $\overline{AB}$ = 5cm, ∠ABC = 60^0 and ∠BAC = 75^0 (4 mks)

   b) Construct a perpendicular from C to meet AB at X

   c) Measure line CX

5. A triangle **TVS** where ∠TVS = 45^0, **VS** = 6cm and angle **VST** = 60^0

   b) Drop a perpendicular from point T to meet VS at K (4 mks)

   c) Measure length TK (1 mk)

6. a) A quadrilateral **ABCD** where **AB** = 7cm, **AD** = 3cm, angle **DAB** = 90^0 and angle **ABC** = 45^0 (4 mks)

7. A parallelogram **ABCD**, given that AB = 7cm, AC = 10cm and BD = 8cm

   b) Measure line BC

8. a) A rectangle **MNRS** where MN = 6cm and line NR = 4cm (4 mks)

   b) Measure the length of the diagonal NS (1 mk)

9. A quadrilateral **ABCD** where $\overline{AD}$ parallel to $\overline{BD}$ = 7cm, $\overline{BC}$ is parallel and perpendicular to $\overline{BD}$ = 5cm (4 mks)

   b) Measure angle BAC

10. a) A triangle **ABC** in which BC = 4cm, angle ABC = 90^0 and angle BCA = 30^0 (5 mks)

    b) Measure the length of AC (1 mk)

11. a) A parallelogram PQRS such that line QR = 7cm and line PQ = 5cm, angle Q = 60^0 (4 mks)

    b) Measure diagonal QS.

12. A triangle **XYZ** in which **XY** = 6cm, **YXZ** = 60^0, **XYZ** = 45^0.

    b) Measure angle **XYZ**

13. a) A triangle **ABC** where line **AB =** 6cm, angle **CAB** = 60^0 , angle **ABC** = 120^0 . Drop a perpendicular from **B** to meet length **AC** at point **O (5 marks)**
    b) Measure the length **AC** (1 mark)
14. A triangle ABC where AB = 6cm, AC = 8cm and angle BAC = 75^0 (4 marks)
15. a) A triangle XYZ where line XY = 7cm, YZ = ZX = 6cm
    b) Drop a perpendicular from Z to meet line XY at P
16. a) A triangle ABC where AB = 6cm, angle ABC = 120^0 and angle BAC = 30^0. (4 marks)
    b) Measure line AC ……. cm (1 mark)
17. a) A quadrilateral ABCD where AB = 3.6cm, BC = 5.1cm, CD = 4.8cm and AD = 3cm.
    b) Measure diagonal AC.
18. A triangle LMN where LM = 6cm, angle LMN = 60^0 and ∠NLM = 45^0. (4 mks)
    b) Drop a perpendicular from N to meet LM at Z hence measure NZ (2 mks)
19. a) A triangle RST such that RS = 7cm, angle SRT = 120^0 and RST = 30^0. Construct a perpendicular line from T to meet RS at point M. (4 marks)
    b) Measure the length of MT
20. a) A quadrilateral **WXYZ** where line segment **WX** = 7.5cm, angle **XWZ** = **WZY** = 90^0 , line **WZ** = 4cm and angle **WXY** = 60^0
    b) Measure the length of XY
21. a) A triangle **ABC** in which line **AB** = 6cm, angle **CAB** = 30^0 and angle **ABC** = 120^0. Drop a perpendicular from **C** to meet **AB** at point **T (5 mks)**
    b) Measure line **CT** (1 mrk)
22. A triangle ABC in which AB = 7cm, angle BAC = 120^0 and angle CBA = 30^0 .(4 mks)
    b) Measure line BC (1 mark)
23. A triangle **PQR**, in which line **PQ** = 6cm, angle **PQR** = 60^0 and angle **RPQ** = 45^0.(3 marks)
    b) Drop a perpendicular line from point R to meet line PQ at N

c) Calculate the area of triangle PQR

24. a) A triangle PQR where PQ = 7cm, angle PQR = 60^0 and angle QPR = 45^0. Drop a perpendicular line from R to meet PQ at point O.
    b) Measure the length PO
25. A triangle ABC where AB = 6cm and ∠BAC = 60^0 and ∠ACB = 45^0. (4 mks)
    b) Measure line AC
26. A triangle QRS where RQ = 7cm, QRS = 75^0 AND QSR = 45^0. (4 mks)
    b) Measure the angle RQS
27. A triangle **ABC** where line **AB** = 6cm, angle **CAB** = 60^0, angle **ABC** = 120^0. Drop a perpendicular from **B** to meet length **AC** at point **O**.(5 mks)
28. A parallelogram **HEAR** in which segment **EA** = 6.5 cm, angle **HEA** = 60^0 and line segment **AR** = 4cm (4 mks)
29. A quadrilateral **ABCD** such that **AB = BC =** 4.5cm and angle **ABC** = 135^0 (4 mks)
    b) Measure diagonal **AC**
30. A parallelogram **WXYZ** such that **XY** = 6cm, **XYZ** = 120^0 and diagonal **XZ** = 9cm (5 mks)
    b) Measure line AB in cm
31. A regular Hexagon in a circle of radius **3.5**cm (4 mks)
32. A triangle **WXY** in which **PR** = 7cm, angle **RPQ** = 120^0 and **PR** = 5cm (4 mks)
    b) Measure angle **RQP**
33. A quadrilateral **ABCD** where **AB** = 3.6cm, **BC** = 5.1cm, **CD** = 4.8cm and **AD** = 3cm.(4 mks)
    b) Measure diagonal **AC**
34. A parallelogram **DANE** such that [illegible] = 6cm, [illegible] = 5cm and angle **DAN** = 120^0. Drop a perpendicular line from point E to meet line **DA** at point **X** (5 mks)
    b) Measure the length EX
35. A triangle **ABC** such that AB = 7cm, AC=9cm and BC=8cm. Bisect angle BAC and let the bisector meet line BC at T. Measure AT and calculate the are of the triangle ABC
36. A parallelogram **ABCD** such that AB=7cm, AB=4cm and angle BAD=60^0.

b) Measure the diagonal AC and BD in cm

37. A triangle EFG where EF=8cm, angle GEF=60^0, angle EFG=45^0. From G, drop a perpendicular bisector to meet EF at H.
    b) Measure GH
    c) Using GH as the height , find the area of the triangle.
38. A triangle **PQR** in which angle PQR=30^0 and PRO=45^0 and line QR=10cm, the base of the triangle
    b) Measure;
    i) PQ
    ii) PR
    b) Find the perimeter of triangle PQR
39. A rectangle ABCD in which AB=10cm and BC=7cm.
    b) Measure the length of diagonal AC
    c) Measure the angle BAC
40. A triangle PQR in which line PQ=6cm, angle RPQ=60^0 and angle PQR=45^0. Construct a perpendicular from R to meet PQ at Y
    b) Measure RY
41. A triangle ABC where line AB=6.4cm, angle CAB=60^0 and angle ABC=75^0.
    b) Measure the length BC
42. A parallelogram ABCD such that line AB=7cm, BC=5cm and angle ABC=120^0. Drop a perpendicular from D to meet AB at M
    b) Measure the line DM
    c) Measure line DC
    d) Measure the size of angle ADC
43. A rhombus UVXY whose diagonals are 14cm and 10cm
    b) Measure the length VX
44. A triangle JKL where JK=6.5cm, angle LJK=30^0 and angle JKL=105^0.
    b) Measure the length LK