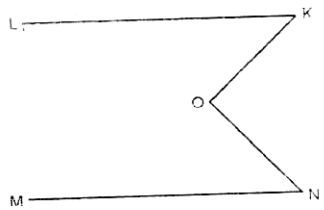
Mental Ability

Ganit Bodh Series

Self Evaluation Test -20 (Geometry)

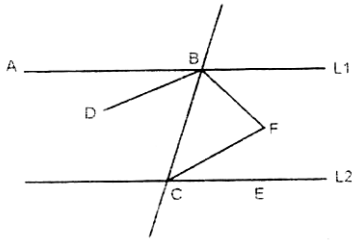
1. In the given figure, MN and KL are parallel lines.



$\angle LKO = 70^o$, $\angle KON = 100^o$
Find $\angle MNO$.

a) 20^o b) 30^o
c) 40^o d) 50^o

2. In the given figure, L1 and L2 are parallel lines. $\angle ABC = 80^o$. If the lines BD and CF are parallel and $\angle DBC = 30^o$, find $\angle FCE$.



a) 30^o b) 45^o
c) 50^o d) 60^o

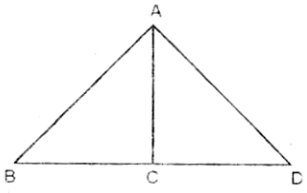
3. The three sides of a triangle measure 6 cm, 8 cm and 10 cm respectively. A rectangle equal in area to the triangle has a length of 8 cm. The perimeter of the rectangle is

a) 11 cm b) 22 cm
c) 16 cm d) None of these

4. The supplement of an angle is five times the angle. What is the measurement of the angle?

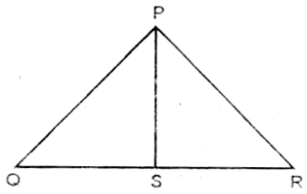
a) 30^o b) 65^o
c) 40^o d) 45^o

5. In the given figure, AB = AD. $\angle ACB = 95^o + \angle BAC$ and $\angle BAD = 150^o$. Find $\angle ACB$.



a) 110^o b) 120^o
c) 130^o d) 140^o

6. In the given figure, PS is the altitude drawn to the side QR of the triangle PQR. $\angle PRS = \angle QPS - 20^o$. $\angle PQS = 20^o$, $\angle PRQ = 50^o$. What is the value of $\angle QPR$?

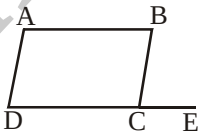


a) 100^o b) 110^o
c) 120^o d) 130^o

7. Identical spherical balls are spread on a table top so as to form an equilateral triangle. How many balls are needed so that a side of the equilateral triangle contains n balls?

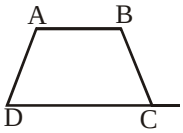
a) $\frac{n(n+1)}{2}$ b) $n^2 - 1$
c) n(n - 1) d) n!

8. In the given figure, ABCD is a parallelogram. Find $2\angle ABC - \angle ADC$.



a) $\angle DAC$. b) $\angle BCE$.
c) $\angle BCD$. d) none

9. ABCD is an isosceles trapezium with lines AB parallel to CD. If $\angle DCB = 40^o$, $\angle BAD$ equals



a) 40^o b) 80^o
c) 100^o d) 140^o

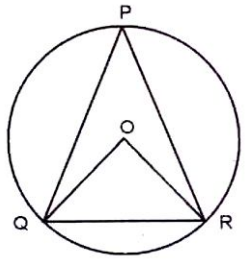
10. A quadrilateral is inscribed in a circle. If an angle is inscribed in each of the segments outside the quadrilateral, then what is the sum of the four angles?

a) 270^o b) 360^o
c) 540^o d) 720^o

11. If each interior angle of a regular polygon is 135^o, find the number of diagonals.

a) 54 b 48
c) 20 d) None of these

12. The sum of the lengths of the hypotenuse and one of the perpendicular sides of a right angled triangle is L. When the area of this triangle is maximum, the angle between these two sides is:
    a) 45º b) 22.5º
    c) 60º d) None of these
13. Three identical right angle cones with base radius r are placed on their bases so that each is touching the other two. The radius of the circle drawn through their vertices is:
    a) Smaller than r
    b) Equal to r
    c) Larger than r
    d) Depends on the height of the cones
14. The line AB is 6 m, in length and is tangent to the inner of the two concentric circles at point C. It is known that the radii of the two circles are integers. The radius of the outer circle is----, where A and B are points on the outer circle.
    a) 5m b) 4 m
    c) 6m d) 3m
15. Under the usual 2-dimensional coordinate system the equation $|x| + |y| = 1$, where x and y are real numbers, represents
    a) A rhombus which is not a square
    b) A parallelogram which is not a rhombus
    c) A square whose sides are not parallel to the coordinates axes
    d) A square with sides parallel to the coordinate axis
16. Two chords of lengths a and b of a circle subtend 60º and 90º angles at the centre respectively. Which of the following is correct?
    a) $b = \sqrt{2a}$ b) $b = \sqrt{2b}$
    c) a = 2b d) b = 2a
17. PQR is a right-angled triangle with $\angle Q = 90º$, S is the mid-point of PR, and QS = $\sqrt{117}$ cm. The sum of the length of sides PQ and QR is 30 cm. Area of ∇ PQR is
    a) 216 cm^2 b) 108 cm^2
    c) 54 cm^2 d) 162 cm^2
18. In a trapezium, the diagonals intersect at point O. The ratio of the length of one of the diagonals from one vertex of the trapezium to the point O to its entire length is 2 : 5. Find the ratio of its parallel sides (smaller side : larger side).
    a) 2 : 5 b) 2 : 3
    c) 2 : 7 d) 5 : 7
19. A chord of length 32 cm is placed inside a circle of radius 20 cm and a point whose distance from the centre of the circle is 13 cm, is marked on the chord. Calculate the lengths of the segments of the chord.
    a) 21 cm & 11 cm b) 19 cm & 13 cm
    c) 16 cm each d) 18 cm & 14 cm
20. In the given figure, O is the centre of the circle and $\angle OQP + \angle ORP = 70º$. Find $\angle ORQ$.



    a) 20º b) 30º
    c) 40º d) 50º