**Geometry – Triangles**

1. C:\Users\tsuser.PC\Desktop\final.pngConsider ABD such that ADB = 20 and C is a point on BD such that AB = AC and CD = CA. What is the measure of ABC  
   a) 45 b) 60 c) 30 d) 40
2. In ABC, A + B = 65, B + C = 140, then find B.   
   a) 40 b) 25 c) 35 d) 20
3. C:\Users\tsuser.PC\Desktop\final.pngABC is a triangle. The bisectors of the internal angle B and external angle C intersect at D.   
   If angle BDC = 50 , then what is A?   
   a) 100 b) 90 c) 120 d) 60
4. C:\Users\tsuser.PC\Desktop\final.pngIn a triangle ABC, A = 90, C = 55 AD BC. What is the value of BAD?   
   a) 35 b) 60 c) 45 d) 55
5. In a triangle ABC, AB = AC, BAC = 40. Then the external angle at B is   
   a) 90 b) 70 c) 110 d) 80
6. C:\Users\tsuser.PC\Desktop\final.pngLet BE and CF be the two medians of a ABC and G be their intersection. Also let EF cut AG at O. Then AO : OG is \_   
   a) 1:1 b) 1:2 c) 2:1 d) 3:1
7. In a triangle, if three altitudes are equal then the triangle is   
   a) Obtuse b) Equilateral c) Right d) Isosceles
8. C:\Users\tsuser.PC\Desktop\final.pngIf the ratio of area of two similar triangles is 9:16, then the ratio of their corresponding sides is\_   
   a) 3:5 b) 3:4 c) 4:5 d) 4:3
9. C:\Users\tsuser.PC\Desktop\final.pngIn an obtuse-angled triangle ABC, A is the obtuse angle and H is the orthocenter. If BHC = 54 then BAC is \_   
   a) 108 b) 126 c) 136 d) 116
10. If G is the centroid of ABC and ABC = 48 cm2, then the area of BGC is   
    a) 32 cm2 b) 8 cm2 c) 16 cm2 d) 24cm2
11. C:\Users\tsuser.PC\Desktop\final.pngIf S is the circumcentre of ABC and A = 50 then what is the value of BCS   
    a) 40 b) 35 c) 110 d) 55
12. I and O are respectively the in-centre and circumcentre of a triangle ABC. The line A1 produced intersects the circumcircle of ABC at the point D. If ABC = x , BID = y and BOD = z, then (z + x) / y = ?   
    a) 3 b) 1 c) 2 d) 4
13. C:\Users\tsuser.PC\Desktop\final.pngIf S is the circumcentre of PQR and QSR = 110 and SPR = 25 then find PRQ   
    a) 60 b) 75 c) 120 d) 105
14. C:\Users\tsuser.PC\Desktop\final.pngIn a right-angled triangle ABC, B = 90, AB = 5 cm and BC = 12 cm. Find the radius of the circumcircle and the length BD, Where D is the midpoint of AC.   
    a) 7.5cm, 6.5cm b) 6.5cm, 6.5cm c) 8.2 cm, 6.5 cm   
    d) 9.5cm, 6.5 cm
15. C:\Users\tsuser.PC\Desktop\final.pngIf I is in the centre of ABC and A = 60, then the value BIC is \_  
    a) 100 b) 120 c) 150 d) 110
16. C:\Users\tsuser.PC\Desktop\final.pngThe external bisectors of B and C of ABC meet at point P. If BAC = 80, then BPC is\_   
    a) 50 b) 40 c) 80 d) 100
17. The height of an equilateral triangle is 15cm. The area of the triangle is -  
    a) 50 3 sq. cm b) 70 3 sq. cm c) 75 3 sq.cm d) 150 3 sq. cm
18. C:\Users\tsuser.PC\Desktop\final.pngIn ABC, DE AC. D and E are two points on AB and CB respectively. If AB = 10 cm and AD = 4cm then BE : CE is -   
    a) 2:3 b) 2 :5 c) 5 :2 d) 3 :2
19. The sum of three altitudes of a triangles is -   
    a) equal to the sum of three sides b) less than the sum of sides   
    c) greater than the sum of sides d) twice the sum of sides
20. ABC is an isosceles triangle such that AB = AC and B = 35 , AD is the median to the base BC. Then BAD is   
    a) 70 b) 35 c) 110 d) 55

**Answers**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 - d | 2 - b | 3 - a | 4 - d | 5 - c | 6 - d | 7 - b | 8 - b | 9 - b | 10 – c |
| 11 – a | 12 - a | 13 - a | 14 – b | 15 – b | 16 – a | 17 – c | 18 – d | 19 – b | 20 – d |

**Additional Examples**

1. C:\Users\tsuser.PC\Desktop\final.pngIf I be the incentre of ABC and B = 70 and C = 50 , then the magnitude of BIC is   
   a) 130 b) 60 c) 120 d) 105
2. C:\Users\tsuser.PC\Desktop\final.pngIn PQR, the line drawn from the vertex P intersects QR at a point S. If QR = 4.5 cm and   
   SR = 1.5 cm then the ratios of the area of PQS and PSR is   
   a) 4 :1 b) 3 :1 c) 3 :2 d) 2 : 1
3. C:\Users\tsuser.PC\Desktop\final.pngIf two medians BE and CF of a ABC, intersect each other at G and if BG = CG, BGC = 60   
   and BC = 8cm. Then area of the ABC is   
   a) 48 cm2 b) 64 cm2 c) 96cm2 d) 48cm2
4. ABC is a cyclic triangle and the bisectors of BAC, ABC and BCA meet the circle at P, Q and R respectively. The exterior angle bisector of BAC and ACB meet at M. If AMC = 60 , then the RIB is   
   a) 45 b) 75 c) 60 d) 30
5. C:\Users\tsuser.PC\Desktop\final.pngGiven that, ABC ABC and PQR are right angle triangle, = and PR = 5cm. if AC is the hypotenuse, what is the radius of the circumcentre of the ABC?   
   a) 15.5 cm b) 16 cm c) 15 cm d) 7.5 cm
6. C:\Users\tsuser.PC\Desktop\final.pngABC is an equilateral triangle and CD is the internal bisector of C. If DC is produced to E such that AC = CE, then what is AOE if O is the orthocenter of the ACE?   
   a) 45 b) 75 c) 30 d) 15
7. C:\Users\tsuser.PC\Desktop\final.pngA, B and C are three points on a circle such that the angles subtended by the chords AB and AC at the centre O are 90 and 110 respectively. Further suppose that the centre ‘O’ lies in the interior BAC, then what is the supplementary angle of   
   a) 40 b) 80 c) 100 d) 20
8. C:\Users\tsuser.PC\Desktop\final.pngIf the lengths of the sides AB, BC and CA of a ABC are 10cm, 8cm and 6cm respectively. If M is the midpoint of BC and MN AB to cut AC at N, then the area of the trapezium ABMN is equal to   
   a) 18 sq. cm b) 20sq. cm c) 12sq. cm d) 16sq. cm
9. C:\Users\tsuser.PC\Desktop\final.pngABC is an equilateral triangle. P and Q are two points on AB and AC respectively such that PQ // BC. If PQ = 5 cm the area of APQ is:   
   a) sq.cm b) sq cm c) sq cm d) 25 sq cm
10. C:\Users\tsuser.PC\Desktop\final.pngThe external bisector of B and C ofABC (where AB and AC extended to E and F respectively) meet at point P. If BAC = 100, then the measure of BPC is   
    a) 50 b) 80 c) 40 d) 100
11. C:\Users\tsuser.PC\Desktop\final.pngThe lengths of the perpendiculars drawn from any point in the interior of an equilateral triangle to the respective sides are P1, P2 and P3. The length of each side of the triangle is   
    a) (P1 +P2 + P3) b) (P1 +P2 + P3) c) (P1 +P2 + P3)   
    d) (P1 +P2 + P3)
12. C:\Users\tsuser.PC\Desktop\final.pngIf the difference between areas of the circumcircle and the incircle of an equilateral triangle is 44cm2, then the area of the triangle is (Take = )   
    a) 28cm2 b) 7 cm2 c) 14cm2 d) 21cm2
13. C:\Users\tsuser.PC\Desktop\final.pngABC is an equilateral triangle of side 2cm. With A, B, C as centres and radius 1cm three arcs are drawn. The area of the region within the triangle bounded by the three arcs is   
    a) (3 - ) cm2 b) ( - ) cm2 c) ( - ) cm2 d) ( -  ) cm2
14. C:\Users\tsuser.PC\Desktop\final.pngIn an equilateral triangle ABC of side 10cm, the side BC is trisected at D. Then the length ( in cm) of AD is   
    a) 3 b) 7 c) d)
15. C:\Users\tsuser.PC\Desktop\final.pngABC is an isosceles triangle with AB = AC. A circle through B touching AC at the middle point intersects AB at P. Then AP : AB is:   
    a) 4:1 b) 2 :3 c) 3 :5 d) 1:4
16. In ABC, C is an obtuse angle. The bisectors of the exterior angle at A and B meet BC and AC produced at D and E respectively. If AB = AD = BE, then ACB =   
    a) 105 b) 108 c) 110 d) 135
17. C:\Users\tsuser.PC\Desktop\final.pngD is any point on side AC of ABC. If P, Q, X, Y are the midpoints AB, BC, AD and DC respectively, then the ratio of PX and QY is   
    a) 1 :2 b) 1:1 c) 2 :1 d) 2 :3
18. C:\Users\tsuser.PC\Desktop\final.pngIf the circumcentre of a triangle lie on the side whose adjacent angles are 45 each, then find the other two sides if the radius of the circumcircle is 15 cm   
    a) 15 cm b) 30 cm c) 15 cm d) 30 cm
19. ABCD is a cyclic quadrilateral. AB and DC when produced meet at P, if PA = 8cm, PB = 6cm, PC = 4cm, then the length (in cm) of PD is   
    a) 10 cm b) 12 cm c) 6 cm d) 8 cm
20. From a point within an equilateral triangle perpendiculars, draw to the three side, are 6cm, 7cm and 8cm respectively. The length of the side of the triangle is:   
    a) 7√3 b) 10.5 cm c) 14√3 d) 14√3/3 cm

**Answers**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 - c | 2 - d | 3 - d | 4 - c | 5 - d | 6 - d | 7 - c | 8 - a | 9 - c | 10 – c |
| 11 – a | 12 - c | 13 - c | 14 – c | 15 – d | 16 – b | 17 – b | 18 – c | 19 – b | 20 – c |