

PQRE CHAMPIONSHIP - 2018

SET - B

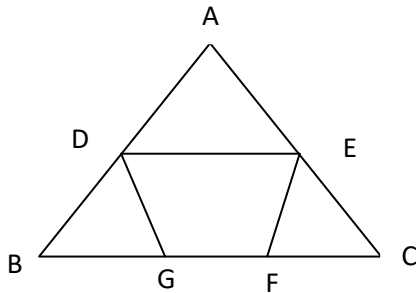
PURE MATHS - 4

Max Marks: 30

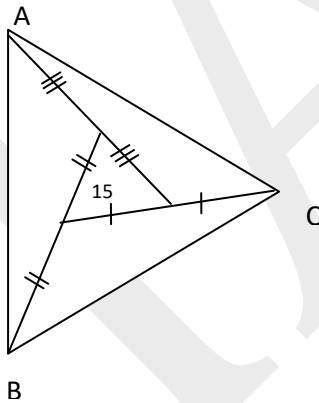
Time: 30 Minutes

Negative marks: 0.25

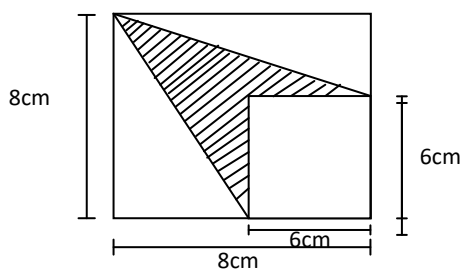
1. $AB=BC=CA$, $DG \parallel AC$, $EF \parallel AB$, $DE \parallel BC$, $AB=30\text{cm}$. Find $GF=?$
Sum of the Sides of Quadrilateral $DEFG$ is 42cm .



- (a) 12 (b) 6 (c) 18 (d) 26
2. $\Delta^{le} ABC$ Right Angled at B. A median is drawn from vertex 'B' on AC is of length 20cm dividing Right Angle in Ratio $2:1$. Find the area of the triangle ABC?
(a) $400\sqrt{3}$ (b) $300\sqrt{3}$ (c) $200\sqrt{3}$ (d) None of these
3. Find Area of $\Delta^{le} ABC$?



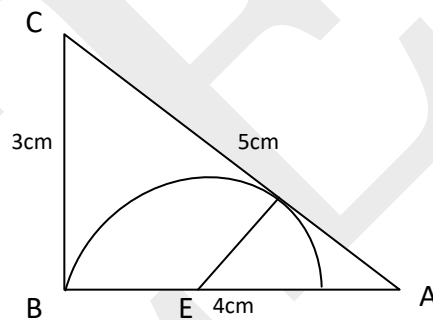
- (a) 120cm^2 (b) 105cm^2 (c) 90cm^2 (d) None of these
4. Find the Area of Shaded - Region?



- (a) 24 (b) 12 (c) 36 (d) 48

5. Perimeter of a $\Delta^{le} ABC$ is 544cm and $AB=AC$ and each equal side is $5/6$ times of Base. Find its Area?
(a) 13872 (b) 17924 (c) 13862 (d) 13895
6. In a ΔABC , BD & CE are the two medians which intersects each other at right angle. $AB=22$, $AC=19$, Find $BC=?$
(a) 15 (b) 17 (c) 13 (d) 19
7. ABC & MNC are two secants of a circle cut at point c outside circle. AN is the diameter of the circle $\angle C=28^\circ$, $\angle NAB=35^\circ$, find $\angle MBN=?$
(a) 27 (b) 54 (c) 28 (d) 56
8. $ABCDEF$ is a regular polygon. Two poles at C and D are standing vertically and subtend angles of elevation 30° and 60° at A respectively. What is the ratio of the height of the pole at C to that of the pole at D ?
(a) 1:1 (b) $2\sqrt{3}:1$ (c) $3\sqrt{3}:1$ (d) $1:2\sqrt{3}$
9. Find the area of Δ made by $4x+3y=12$, $5x+7y=35$ and x -axis?
(a) $160/13$ (b) $320/27$ (c) $161/15$ (d) none of these
10. If $x + \frac{1}{x} = 5$, then $\frac{x^4 + 3x^3 + 5x^2 + 3x + 1}{x^4 + 1} = ?$
(a) $23/27$ (b) $47/29$ (c) $43/23$ (d) None of these
11. $(a+b) : \sqrt{ab} = 4:1$, $a > b$ then $a:b = ?$
(a) $\frac{2+\sqrt{3}}{2-\sqrt{3}}$ (b) $\frac{4+\sqrt{5}}{4-\sqrt{5}}$ (c) $\frac{5+\sqrt{7}}{5-\sqrt{7}}$ (d) None of these
12. $x = \sqrt{3} + \frac{1}{\sqrt{3}}$ find value of $\left(x - \frac{\sqrt{126}}{\sqrt{42}}\right) \left(x - \frac{1}{x - \frac{2\sqrt{3}}{3}}\right) = ?$
(a) $5/6$ (b) $2/3$ (c) $7/9$ (d) $11/13$
13. If $ab+bc+ca = abc$, Then find the value of $\frac{b+c}{bc(a-1)} + \frac{a+c}{ac(b-1)} + \frac{a+b}{ab(c-1)} = ?$
(a) 0 (b) -0.5 (c) -1.5 (d) 1
14. $\frac{a^2-bc}{a^2-bc} + \frac{b^2-ca}{b^2-ca} + \frac{c^2-ab}{c^2-ab} = 1$
Find the value of $\frac{a^2}{a^2+bc} + \frac{b^2}{b^2+ca} + \frac{c^2}{c^2+ab} = 1$
(a) 0 (b) 1 (c) -1 (d) 2
15. If $x = \frac{\sqrt{5+1}}{\sqrt{5-1}}$, then find the value of $x^2 - x + 1 = ?$
(a) 3 (b) 2 (c) $2\sqrt{2}$ (d) 0
16. In a ΔABC , $\angle B = 90^\circ$ $AB-BC=2$, $AC=2\sqrt{5}$, $\cos^2 A - \cos^2 C = ?$
(a) $5/6$ (b) $3/5$ (c) $2/5$ (d) $3/4$

17. $10 \sin^4 \theta + 15 \cos^4 \theta = 6$
Find $27 \operatorname{cosec}^6 \theta + 8 \sec^6 \theta$?
(a) 500 (b) 750 (c) 250 (d) 4
18. $\sin \frac{\pi}{9} \cdot \sin \frac{5\pi}{9} \cdot \sin \frac{7\pi}{9} \cdot \sin \frac{3\pi}{9}$?
(a) $\frac{3}{16}$ (b) $\frac{7}{17}$ (c) $\frac{8}{27}$ (d) None of these
19. $\tan 40^\circ = a$. find $\tan 100^\circ = ?$
(a) $\frac{2a}{a^2-1}$ (b) $\frac{a^2-1}{a^2+1}$ (c) $\frac{3a}{3a^2+5}$ (d) None of these
20. The angle of elevation from the foot of the mountain to its top is 45° . After walking 42km on the mountain on the inclination of 30° . He finds that the angle of elevation to its top is 60° . Find the height of the mountain?
(a) $17(\sqrt{2} + 1)$ (b) $21(\sqrt{3} + 1)$
(c) $21(\sqrt{3} - 1)$ (d) None of these
21. If $\sin \theta + \sin^2 \theta = 1$, then
 $\cos^{12} \theta + 3 \cos^{10} \theta + 3 \cos^8 \theta + \cos^6 \theta + 64 = ?$
(a) 64 (b) 128 (c) 66 (d) 65
22. $(1 + \sec 20^\circ + \cot 70^\circ)(1 - \operatorname{cosec} 20^\circ + \tan 70^\circ) = ?$
(a) 0 (b) 1 (c) 2 (d) -1
23. Find the area of the equilateral Δ in which three altitude of length $\sqrt{3}$ cm, $2\sqrt{3}$ cm, $5\sqrt{3}$ cm are drawn from a point inside the Triangle?
(a) $64\sqrt{3}$ (b) $\sqrt{26}$ (c) $3\sqrt{72}$ (d) None of these
24. Find the number of sides of a polygon in which the number of diagonals are 27?
(a) 7 (b) 9 (c) 11 (d) 13
25. The length of a rectangular sheet is 10cm. What would be its minimum breadth so that 9 circular sheets of radius 1cm can be cut from it?
(a) $2 + \sqrt{3}$ (b) $2 - \sqrt{3}$ (c) $4 + \sqrt{5}$ (d) $4 - \sqrt{5}$
26. Find the volume of a right prism which is based on a regular hexagon of Height 10cm. If its T.S.A is $156\sqrt{3}$ cm?
(a) $180\sqrt{3}$ (b) $150\sqrt{5}$ (c) 160 (d) 320
27. The side of a right angle Δ are 15,20&25cm. If the Δ is revolve around its hypotenuse, then find the volume of the formed figure?
(a) 120π (b) 360π (c) 240π (d) 420π
28. A cylindrical can whose base is horizontal is of internal radius 3.5cm contain sufficient water so that when a solid sphere of maximum size is placed, water just immersed it. Calculate the depth of water in the can before the sphere was put.
(a) $\frac{8}{3}$ (b) $\frac{7}{3}$ (c) $\frac{9}{2}$ (d) $\frac{6}{5}$
29. The ratio between the number of sides of two regular polygon 1:2 and the ratio between their interior angle is 3:4. The number of sides of these polygons are respectively:
(a) 3,6 (b) 4,8 (c) 6,9 (d) 5, 10
30. In the given figure, $AC=5$ cm, $AB=4$ cm, $BC=3$ cm. If E is the centre of the semicircle then the radius of semi circle is?
(a) 1.5 (b) 1.75 (c) 2.75 (d) 3.5



***** ALL THE BEST *****