

Quant Mega Quiz for SSC Tier - 1

Q1. If $x + \frac{1}{x} = \sqrt{3}$ the value of $x^{24} + x^{18} + x^{12} + x^6$ is

- (a) 0
- (b) 1
- (c) 2
- (d) 3

Q2. If $x = 1 + \sqrt{2} + \sqrt{3}$, then the value of $2x^4 - 8x^3 - 5x^2 + 26x - 28$ is

- (a) $2\sqrt{2}$
- (b) $3\sqrt{3}$
- (c) $5\sqrt{5}$
- (d) $6\sqrt{6}$

Q3. The simplified value of $\left(1 - \frac{2xy}{x^2+y^2}\right) \div \left(\frac{x^3-y^3}{x-y} - 3xy\right)$ is

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

Q4.

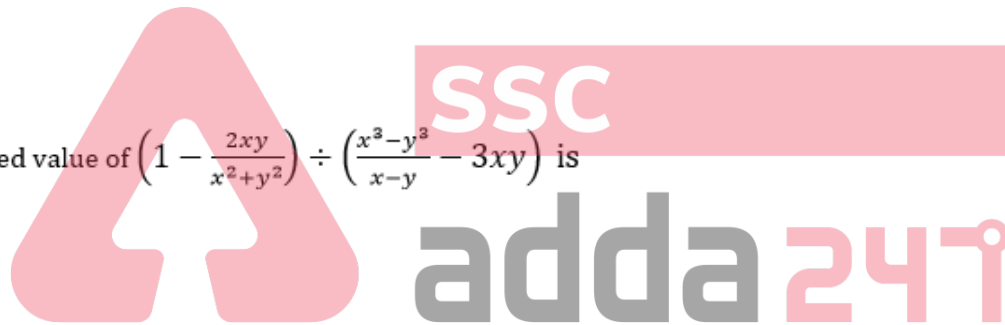
If $a + b + c = 0$ then the value of

$$\frac{1}{(a+b)(b+c)} + \frac{1}{(b+c)(c+a)} + \frac{1}{(c+a)(a+b)} \text{ is}$$

- (a) 0
- (b) 3
- (c) 1
- (d) 2

Q5. If $x = \frac{\sqrt{5}+1}{\sqrt{5}-1}$ and $y = \frac{\sqrt{5}-1}{\sqrt{5}+1}$ the value of $\frac{x^2 + xy + y^2}{x^2 - xy + y^2}$ is

- (a) $3/4$
- (b) $5/3$
- (c) $4/3$
- (d) $3/5$



NRA-CET Ready

SSC

MAHA PACK

Live Class, Video Course,
Test Series, eBooks

Bilingual (with eBooks)
12 Months Validity

Q6. If $\left(a + \frac{1}{a}\right)^2 = 3$, then the value of $a^{18} + a^{12} + a^6 + 1$ is

- (a) 3
- (b) 1
- (c) 0
- (d) 2

Q7. $(113^2 + 115^2 + 117^2 - 113 \times 115 - 115 \times 117 - 113 \times 117)$ is equal to

- (a) 0
- (b) 4
- (c) 8
- (d) 12

Q8. If $a + b = 1$, then $a^4 + b^4 - a^3 - b^3 - 2a^2b^2 + ab$ is equal to

- (a) 1
- (b) 2
- (c) 4
- (d) 0

Q9. If $x^2 + y^2 + 6x + 5 = 4(x - y)$ then $x - y$ is

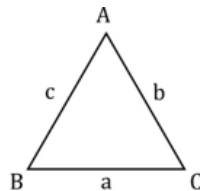
- (a) 1
- (b) -1
- (c) 0
- (d) 4



Q10. If $a = 299$, $b = 298$, $c = 297$ then the value of $2a^3 + 2b^3 + 2c^3 - 6abc$ is

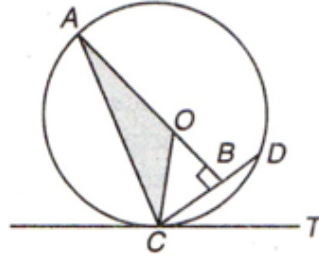
- (a) 5154
- (b) 5267
- (c) 5364
- (d) 5456

Q11. In the given triangle ABC, the length of sides AB and AC is same (i.e., $b = c$) and $60^\circ < A < 90^\circ$, then the possible length of BC is :



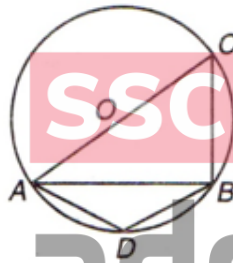
- (a) $b < a < 2b$
- (b) $\frac{c}{3} < a < 3a$
- (c) $b < a < b\sqrt{3}$
- (d) $c < a < c\sqrt{2}$

Q12. In the given diagram CT is tangent at C, making an angle of $\frac{\pi}{4}$ with CD. O is the centre of the circle. CD = 10 cm. What is the perimeter of the shaded region (ΔAOC) approximately ?



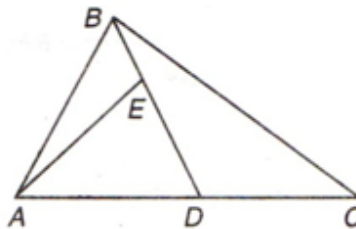
- (a) 27 cm
- (b) 30 cm
- (c) 25 cm
- (d) 31 cm

Q13. In the given diagram, 'O' is the centre of the circle and AC is the diameter. $\angle ADB$ is 120° . Radius of the circle is 6 cm, what is the area of the triangle ABC ?



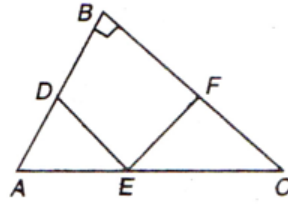
- (a) $18\sqrt{3} \text{ cm}^2$
- (b) $24\sqrt{3} \text{ cm}^2$
- (c) 27 cm^2
- (d) data insufficient

Q14. In the given figure ABC is a triangle in which $3AD = CD$ and E lies on BD, $DE = 2BE$. What is the ratio of area of ΔABE and area of ΔABC ?



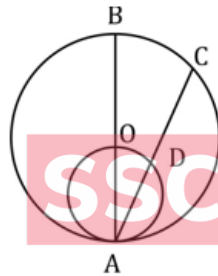
- (a) 1/12
- (b) 1/3
- (c) $\frac{1}{2}$
- (d) None of these

Q15. In the adjoining figure ABC is a right angled triangle, BDEF is a square, AE = 7.5 cm and AC = 18 cm. What is the area of triangle ABC?

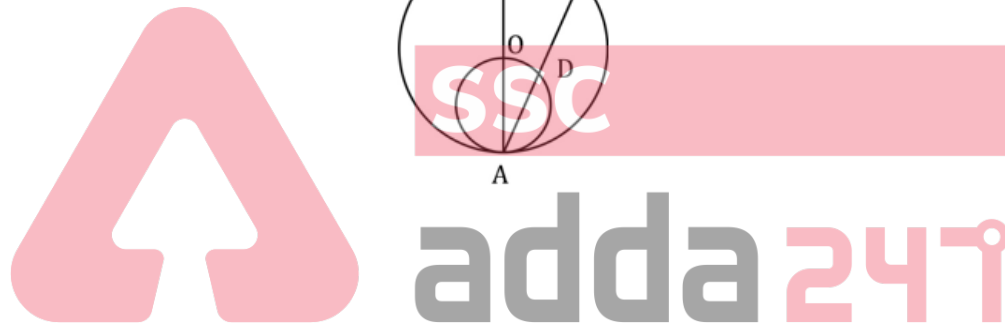


- (a) 76.621 cm²
- (b) 70.054 cm²
- (c) 83.25 cm²
- (d) 90.90 cm²

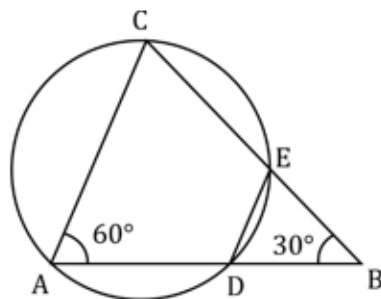
Q16. A smaller circle touches internally to a larger circle at A and passes through the centre of the larger circle. O is the centre of the larger circle and BA, OA are the diameters of the larger and smaller circles respectively. Chord AC intersects the smaller circle at a point D. If AC = 12 cm, then AD is :



- (a) 4 cm
- (b) 6 cm
- (c) 5.6 cm
- (d) data insufficient



Q17. In the given figure ADEC is a cyclic quadrilateral, CE and AD are extended to meet at B. $\angle CAD = 60^\circ$ and $\angle CBA = 30^\circ$. Given that $BD = 6\text{cm}$ and $CE = 5\sqrt{3}\text{ cm}$. What is the ratio of AC : AD ?



- (a) $\frac{3}{4}$
- (b) $\frac{4}{5}$
- (c) $\frac{2\sqrt{3}}{5}$
- (d) can't be determined

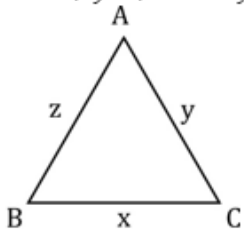
BILINGUAL



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2020-21 Batch 2.0
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 11 AM to 05 PM

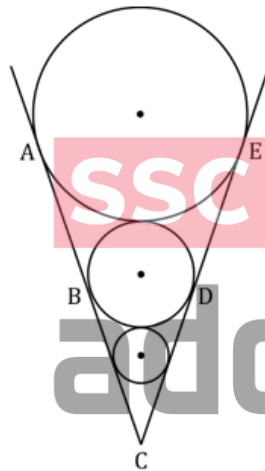
Q18.

If $x^2 + y^2 + z^2 = xy + yz + zx$, then the triangle is :



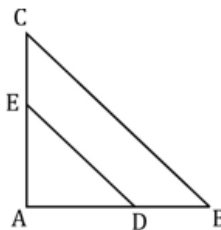
- (a) isosceles
- (b) right angled
- (c) equilateral
- (d) scalene

Q19. In the adjoining figure $\angle ACE$ is a right angle. There are three circles which just touch each other and AC and EC are the tangents to all the three circles. What is the ratio of radii of the largest circle to that of the smallest circle ?



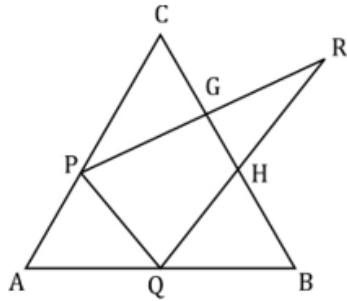
- (a) $17 : 12\sqrt{2}$
- (b) $1 : (17 - 12\sqrt{2})$
- (c) $12 : 17\sqrt{2}$
- (d) None of the above

Q20. In a right angle triangle ABC, $\angle A$ is right angle DE is parallel to the hypotenuse BC and the length of DE is 65% the length of BC, what is the area of $\triangle ADE$, If the area of $\triangle ABC$ is 68 m^2 ?



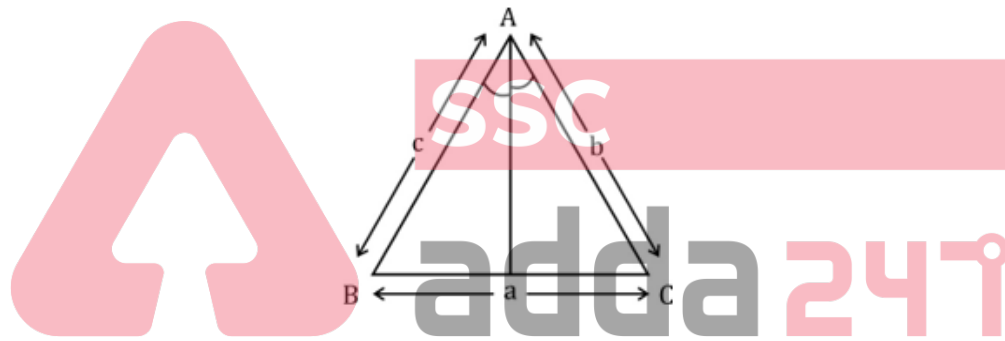
- (a) 27.83 cm^2
- (b) 41.6 cm^2
- (c) 28.73 cm^2
- (d) None of the above

Q21. In the given figure, P and Q are the mid-points of AC and AB. Also, PG = GR and HQ = HR. What is the ratio of area of ΔPQR : area of ΔABC ?



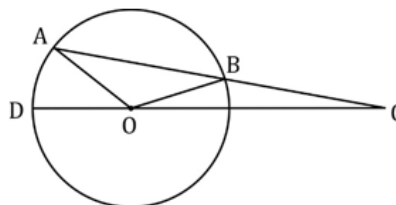
- (a) $1/2$
- (b) $2/3$
- (c) $3/5$
- (d) none of the above

Q22. In a triangle ABC, AD is the angle bisector of $\angle BAC$ and $\angle BAD = 60^\circ$. What is the length of AD ?



- (a) $\frac{b+c}{bc}$
- (b) $\frac{bc}{b+c}$
- (c) $\sqrt{b^2 + c^2}$
- (d) $\frac{(b+c)^2}{bc}$

Q23. In the figure given below, AB is the chord of a circle with centre O. AB is extended to C such that BC = OB. The straight line CO is produced to meet the circle at D. If $\angle ACD = y$ degrees and $\angle AOD = x$ degrees such that $x = ky$, then the value of k is:



- (a) 3
- (b) 2
- (c) 1
- (d) None of these

Bilingual

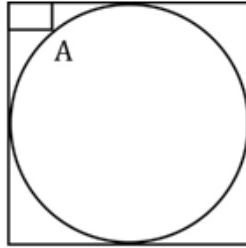
SSC CHSL

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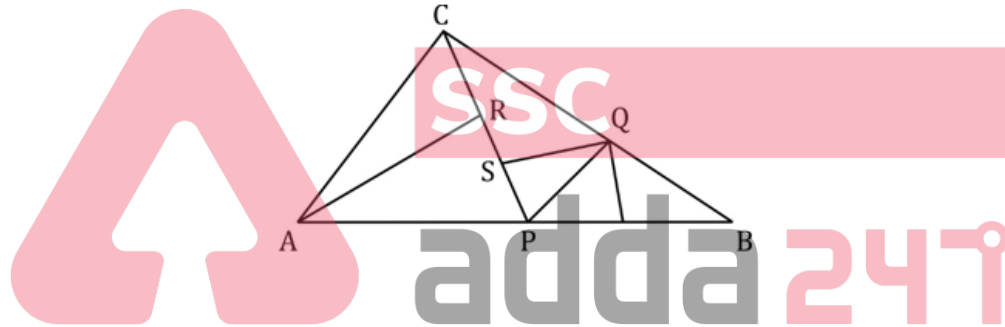
2020-21 Online Tests

Q24. In the figure below, the rectangle at the corner measures $10\text{ cm} \times 20\text{ cm}$. The corner A of the rectangle is also a point on the circumference of the circle. What is the radius of the circle in cm?



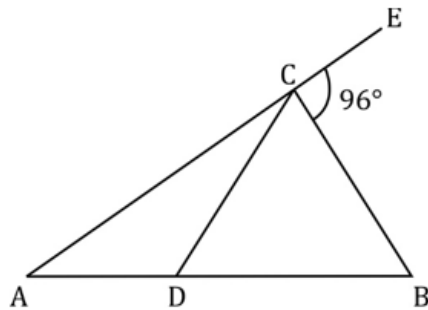
- (a) 10 cm
- (b) 40 cm
- (c) 50 cm
- (d) None of the above

Q25. In the figure (not drawn to scale) given below, P is a point on AB such that $AP : PB = 4 : 3$. PQ is parallel to AC and QD is parallel to CP. In $\triangle ARC$, $\angle ARC = 90^\circ$, and in $\triangle PQS$, $\angle PSQ = 90^\circ$. The length of QS is 6 cms. What is the ratio AP : PD ?



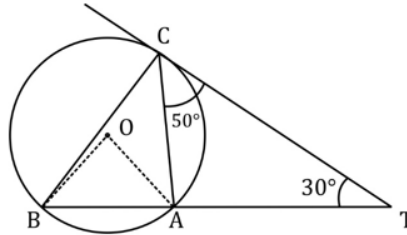
- (a) 10 : 3
- (b) 2 : 1
- (c) 7 : 3
- (d) 8 : 3

Q26. In the figure (not drawn to scale) given below, if $AD = CD = BC$ and $\angle BCE = 96^\circ$, how much is $\angle DBC$?



- (a) 32°
- (b) 84°
- (c) 64°
- (d) can't be determined

Q27. In the figure given below (not drawn to scale) A, B and C are three points on a circle with centre O. The chord BA is extended to a point T such that CT becomes a tangent to the circle at point C. If $\angle ATC = 30^\circ$ and $\angle ACT = 50^\circ$, then the angle $\angle BOA$ is :



- (a) 100°
- (b) 150°
- (c) 80°
- (d) can't be determined

Q28. A piece of paper is in the shape of a right angled triangle and is cut along a line that is parallel to the hypotenuse, leaving a smaller triangle. There was a 35% reduction in the length of the hypotenuse of the triangle. If the area of the Original triangle was 34 square inches before the cut, what is the area (in square inches) of the smaller triangle ?

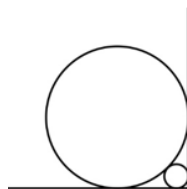
- (a) 16.665
- (b) 16.565
- (c) 15.465
- (d) 14.365

Q29. On a semicircle with diameter AD, chord BC is parallel to the diameter. Further, each of the chords AB and CD has length 2, while AD has length 8. What is the length of BC ?



- (a) 7.5
- (b) 7
- (c) 7.75
- (d) None of these

Q30. A circle with radius 2 is placed against a right angle. Another smaller circle is also placed as shown in the adjoining figure. What is the radius of the smallest circle ?



- (a) $3 - 2\sqrt{2}$
- (b) $4 - 2\sqrt{2}$
- (c) $7 - 4\sqrt{2}$
- (d) $6 - 4\sqrt{2}$

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12 Months Validity*