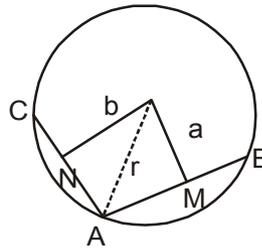


1. If $x = \sqrt{a} + \frac{1}{\sqrt{a}}$, $y = \sqrt{a} - \frac{1}{\sqrt{a}}$, then value of $x^4 + y^4 - 2x^2y^2$ is
 (A) 16 (B) 20 (C) 10 (D) 5
2. If $x = \frac{\sqrt{3}}{2}$ then what is the value of $\frac{1+x}{1+\sqrt{1+x}} + \frac{1-x}{1-\sqrt{1-x}}$?
 (A) 1 (B) 2 (C) $\frac{3}{4}$ (D) $\frac{4}{3}$
3. What is the value of $\sqrt{-\sqrt{3} + \sqrt{3+8\sqrt{7+4\sqrt{3}}}}$?
 (A) 3 (B) 4 (C) 1 (D) 2
4. The angle covered by hour hand of a clock from half past six in the morning to three o'clock in the noon is
 (A) 270° (B) 245° (C) 255° (D) 265°
5. Area of a right angled triangle is A. If its one of the perpendicular side is b then length of altitude from right vertex to hypotenuse is
 (A) $\frac{2Ab}{\sqrt{b^4+4A^2}}$ (B) $\frac{2A^2b}{\sqrt{b^4+4A^2}}$ (C) $\frac{2Ab^2}{\sqrt{b^4+4A^2}}$ (D) $\frac{2A^2b^2}{\sqrt{b^4+A^2}}$
6. If $pqr = 1$, then what is value of the expression $\frac{1}{1+p+q^{-1}} + \frac{1}{1+q+r^{-1}} + \frac{1}{1+r+p^{-1}}$?
 (A) 1 (B) -1 (C) 0 (D) $\frac{1}{3}$
7. The perimeter of an isosceles right-angled triangle is $2p$ unit. The area of the same triangle is.
 (A) $(3 - \sqrt{2})p^2$ sq unit (B) $(2 - \sqrt{2})p^2$ sq unit (C) $(3 - 2\sqrt{2})p^2$ sq unit (D) $(3 + 2\sqrt{2})p^2$ sq unit
8. A dishonest shopkeeper sells the items at cost price. But, for every kg he gives 200 gm less. His profit percentage is _____.
 (A) 20% (B) 25% (C) 30% (D) 15%
9. Five men or ten women can complete a job in 20 days. Find the time in which four men and four women can complete it (in days).
 (A) 15 (B) 20 (C) $13\frac{1}{3}$ (D) $16\frac{2}{3}$
10. If $\sqrt{4x^4 + 12x^3 + 25x^2 + 24x + 16} = ax^2 + bx + c$, then which of the following is true?
 (A) $2b = a - c$ (B) $2a = b + c$ (C) $2b = a + c$ (D) $2b = c - a$
11. $\sqrt{ab} = \sqrt{a}\sqrt{b}$ is not true if $a, b \in \mathbb{R}$
 (A) $a > 0, b < 0$ (B) $a > 0, b > 0$ (C) $a < 0, b < 0$ (D) $a < 0, b > 0$

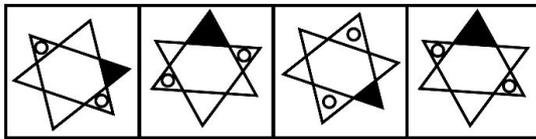
12. If $a+b+c=0$ then $\frac{a^2}{bc} + \frac{b^2}{ca} + \frac{c^2}{ab} = ?$
 (A) 0 (B) 1 (C) 3 (D) None of these
13. How many Diagonals are there in a octagon?
 (A) 12 (B) 16 (C) 20 (D) 28
14. AB and AC are two chord of circle r. If $AB=2AC$ and perpendicular drawn from centre on these chords are length a and b. Find $\left(\frac{a^2 + 3r^2}{b^2}\right) = ?$



- (A) 2 (B) 3 (C) 4 (D) 6
15. The number of times the digit 5 will appear while writing the integers from 1 to 1000 is
 (A) 269 (B) 271 (C) 300 (D) 302
16. If 'A \$ B' means 'A is the father of B', 'A ★ B' means 'A is the mother of B', 'A @ B' means 'A is the wife of B', then which of the following means 'M is the grandmother of N' ?
 (A) M ★ T \$ N @ R (B) M ★ T \$ R @ S (C) M ★ R \$ T @ N (D) M ★ R @ T @ N
17. If > denotes '+', < denotes '-', + denotes '÷', - denotes '=', = denotes 'less than' and × denotes 'greater than', which of the following is a correct statement ?
 (A) $3 + 2 > 4 = 9 + 3 < 2$ (B) $3 > 2 > 4 = 18 + 3 < 1$
 (C) $3 > 2 < 4 \times 8 + 4 < 2$ (D) $3 + 2 < 4 \times 9 + 3 < 3$
18. A cube of side 6 cm is painted on all its 6 faces with red colour. It is then broken up into 216 smaller identical cubes. What is the ratio of $N_0 : N_1 : N_2$.
 Where, $N_0 \rightarrow$ number of smaller cubes with no coloured surface.
 $N_1 \rightarrow$ number of smaller cubes with 1 red face.
 $N_2 \rightarrow$ number of smaller cubes with 2 red faces.
 (A) 3 : 4 : 6 (B) 3 : 4 : 5 (C) 4 : 6 : 3 (D) 6 : 4 : 3
19. A person's present age is two-fifth of the age of his mother. After 8 years, he will be half of the age of his mother. How old is the mother at present ?
 (A) 32 years (B) 36 years (C) 40 years (D) 48 years
20. If $4^{44} + 4^{44} + 4^{44} + 4^{44} = 4^x$, then x is _____.
 (A) 45 (B) 44 (C) 176 (D) 11
21. A boy multiplied 12345679 by second, third and seventh multiple of 9, then the average of their total is _____.
 (A) 444444444 (B) 44444444 (C) 4444444 (D) 444444

Directions (22-24): In each problem, out of the four figures marked (a) (b), (c) and (d), three are similar in a certain manner. However, one figure is not like the other three. Choose the figure which is different from the rest.

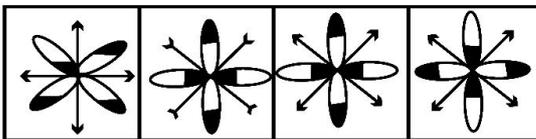
22.



(a) (b) (c) (d)

- (A) a (B) b (C) c (D) d

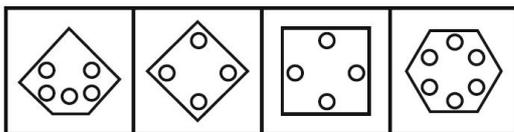
23.



(a) (b) (c) (d)

- (A) a (B) b (C) c (D) d

24.



(a) (b) (c) (d)

- (A) a (B) b (C) c (D) d

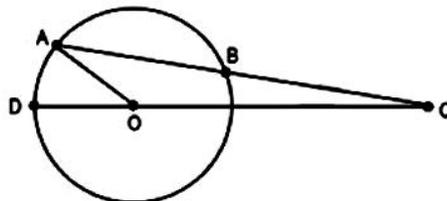
25. Find the minimum integral value of n such that the division $55n/124$ leaves no remainder.

- (A) 124 (B) 123 (C) 31 (D) 62

26. Let A and B be two solid spheres such that the surface area of B is 300% higher than the surface area of A . The volume of A is found to be $k\%$ lower than the volume of B . The value of k must be

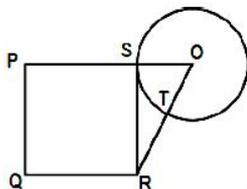
- (A) 85.5 (B) 92.5 (C) 90.5 (D) 87.5

27. In the figure below, AB is the chord of a circle with center 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 the above

28. If $a + b + c = 0$, where $a \neq b \neq c$, then $\frac{a^2}{2a^2 + bc} + \frac{b^2}{2b^2 + ac} + \frac{c^2}{2c^2 + ab}$ is equal to :
- (A) zero (B) 1 (C) -1 (D) abc
29. A circle is inscribed in a given square and another circle is circumscribed about the square. What is the ratio of the area of the inscribed circle to that of the circumscribed circle?
- (A) 2 : 3 (B) 3 : 4 (C) 1 : 4 (D) 1 : 2
30. 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 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
31. PQRS is a square. SR is a tangent (at point S) to the circle with centre O and $TR = OS$. Then the ratio of area of the circle to the area of the square is



- (A) $\frac{\pi}{3}$ (B) $\frac{11}{7}$ (C) $\frac{3}{\pi}$ (D) $\frac{7}{11}$

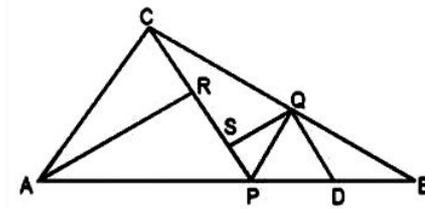
32. The integers 34041 and 32506, when divided by a three-digit integer n , leave the same remainder. What is the value of n ?
- (A) 289 (B) 367 (C) 453 (D) 307
33. From each of two given numbers, half the smaller number is subtracted. Of the resulting numbers the larger one is three times as large as the smaller. What is the ratio of the two numbers ?
- (A) 2 : 1 (B) 3 : 1 (C) 3 : 2 (D) 2 : 3

Answer questions 34 and 35 on the basis of the information given below:

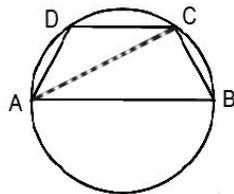
An airline has a certain free luggage allowance and charges for excess luggage at a fixed rate per kg. Two passengers, Raja and Praja have 60 kg of luggage between them, and are charged Rs. 1200 and Rs.2400 respectively for excess luggage. Had the entire luggage belonged to one of them, the excess luggage charge would have been Rs.5400.

34. What is the weight of Praja's luggage?
- (A) 20 kg (B) 25 kg (C) 30 kg (D) 35 kg
35. What is the free luggage allowance?
- (A) 10 kg (B) 15 kg (C) 20 kg (D) 25 kg
36. The number of integers N for which $N^2 - N$ is prime number is :
- (A) 1 (B) 2 (C) 0 (D) 3
37. If a two-digit number is divided by the number having same digits written in reverse order, we get 4 as quotient and 3 as remainder and if the number is divided by the sum of the digits then we get 8 as a quotient and 7 as a remainder. Find the number.
- (A) 71 (B) 51 (C) 17 (D) none

38. 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 cm. What is the ratio $AP : PD$?



- (A) 10 : 3 (B) 2 : 1 (C) 7 : 3 (D) 8 : 3
39. The speed of a railway engine is 42 kmph when no compartment is attached, and the reduction in speed is directly proportional to the square root of the number of compartments attached. If the speed of the train carried by this engine is 24 kmph when 9 compartments are attached, the maximum number of compartments that can be carried by the engine is
 (A) 49 (B) 48 (C) 46 (D) 47
40. In the given figure, AB is diameter of the circle and points C and D are on the circumference such that $\angle CAD = 30^\circ$ and $\angle CBA = 70^\circ$. What is the measure of $\angle ACD$?



- (A) 40° (B) 50° (C) 30° (D) 90°

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64

Selection in
JEE Advanced

802

Selection in
JEE Main

53

Selection in
Different Medical
Entrance
Examination

72

Selection in
NTSE
Scholarship
Examination

90

Selection in
OLYMPIAD
Scholarship
Examination

14

Selection in
KVPY
Scholarship

JEE-ADVANCED



JEE-Advanced
AIR : 723



JEE-Advanced
AIR : 1310*



JEE-Advanced
AIR : 1643/19



JEE-Advanced
AIR : 1652



JEE-Advanced
AIR : 1960



JEE-Advanced
AIR : 2069



JEE-Advanced
AIR : 2260



JEE-Advanced
AIR : 2474



JEE-Advanced
AIR : 2942



JEE-Advanced
AIR : 3178



JEE-Advanced
AIR : 3493



JEE-Advanced
AIR : 3517



JEE-Advanced
AIR : 4009



JEE-Advanced
AIR : 4250



JEE-Advanced
AIR : 4859



JEE-Advanced
AIR : 5240



JEE-Advanced
AIR : 7539



JEE-Advanced
AIR : 13000

NEET



Anwar
Ahmad
Siddiqui
Marks
850



Anurag
Srivastava
Marks
781



Vikash
Tiwari
Marks
633



Anand
M. Mishra
Marks
554



Priya
Sharma
Marks
543



Ankur
Singh
Marks
539



Anjali
Dubey
Marks
527



Kriti
Yadav
Marks
524



Abhinav
Kumar
Marks
517



Heena
Fatima
Marks
512



Shruti
Marks
419



Aakanksha
Chandra
Marks
372

CBSE 12th Board Results 2019



Anusara
Prasadi
94.60%



Kartik
Mishra
93%



Samir
Pandey
92.80%



Niharika
Singh
92.20%



Nishu
Maurya
92%



Yashraj
Singh
92%



Anand M.
Mishra
92%



Aryen
Daboch
91.60%



Swati
Shukla
90.60%



Ayush
Tripathi
90.40%



Sruvati
Tiwari
90.40%

CBSE 10th Board Results 2019



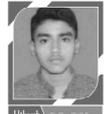
Shiv
Kumar
97.4%



Ananya
Pandey
97%



Anshya
Pandey
96.2%



Utkarsh
Prakash
96.2%



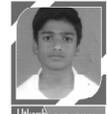
Anshu
Singh V
96%



Abhinav
Kumar
95.8%



Abhinav
K. Tiwari
95.6%



Utkarsh
Singh
95.2%



Amit
Shukla
95%



Utkarsh
Sharma
95%



Anvita
Mishra
95%



Shashank
Dwivedi
94.8%



Shreya
P. Singh
94.8%



Kartavya
Kumar
94.6%



Ayushi
Mishra
94.4%



Sanchit
Rai
94.4%



Anshu
Tripathi
94.2%



Anshya
Yadav
94%



Shubham
Singh
94%



Sakshi
Pandey
93.6%



Priyanshi
Yadav
93.4%



Alok
Ranjana
92.8%



Khushi
Tiwari
92.8%



Tarun
Yadav
92.6%



Akhyaan
Singh
92.4%



Utkarsh
Rao
92.4%



Dhyanesh
Rai
92.2%



Alkhana
P. Singh
92%



Naveen
R. Gupta
92%



Om
Mishra
92%



Purbha
Tripathi
92%



Priyanshu
Gupta
91.8%



Vivek
K. Singh
91.4%