

30-November-2016 Math Morning

QUESTION.1 - Each member of a club contributes as much rupees and as much paise as the number of members of the club. If the total contribution is Rs. 2525, then the number of members of the club is

Options:

- 1) 60
- 2) 45
- 3) 55
- 4) 50

Correct Answer: 50

QUESTION.2 - The numerator of a fraction is multiple of two numbers. One of the numbers is greater than the other by 2. The greater number is smaller than the denominator by 4. If the denominator $7+C$ ($C > -7$) is a constant, then the minimum value of the fraction is

Options:

- 1) 5
- 2) $1/5$
- 3) -5
- 4) $-1/5$

Correct Answer: $-1/5$

QUESTION.3 - A number when divided by the sum of 555 and 445 gives two times their difference as quotient and 30 as the remainder. The number is

Options:

- 1) 220030
- 2) 22030
- 3) 1220
- 4) 1250

Correct Answer: 220030

QUESTION.4 - When a number x is divided by a divisor it is seen that the divisor = 4 times the quotient = double the remainder. If the remainder is 80 then the value of x is

Options:

- 1) 6480
- 2) 9680
- 3) 8460
- 4) 4680

Correct Answer: 6480

QUESTION.5 - On dividing a certain number by 342 we get 47 as remainder. If the same number is divided by 18, what will be the remainder ?

Options:

- 1) 15
- 2) 11
- 3) 17
- 4) 13

Correct Answer: 11

QUESTION.6 - The sum of three numbers is 252. If the first number is thrice the second and third number is two-third of the first, then the second number is

Options:

- 1) 41
- 2) 21
- 3) 42
- 4) 84

Correct Answer: 42

QUESTION.7 - The sum of squares of three positive integers is 323. If the sum of squares of two numbers is twice the third, their product is

Options:

- 1) 255
- 2) 260
- 3) 265
- 4) 270

Correct Answer: 255

QUESTION.8 - The sum of three numbers is 2, the 1st number is $\frac{1}{2}$ times the 2nd number and the 3rd number is $\frac{1}{4}$ times the 2nd number. The 2nd number is

Options:

- 1) $\frac{7}{6}$
- 2) $\frac{8}{7}$
- 3) $\frac{9}{8}$
- 4) $\frac{10}{9}$

Correct Answer: $\frac{8}{7}$

QUESTION.9 - Three numbers are in Arithmetic Progression (AP) whose sum is 30 and the product is 910. Then the greatest number in the AP is

Options:

- 1) 17
- 2) 15
- 3) 13
- 4) 10

Correct Answer: 13

QUESTION.10

Simplify :

$$\sqrt[3]{-2197} \times \sqrt[3]{-125} \div \sqrt[3]{\frac{27}{512}}$$

Options:

- 1) 492/7
- 2) 520/3
- 3) 554/7
- 4) 571/5

Correct Answer: 520/3

QUESTION.11 - A canal of a village can be cleaned by 24 villagers in 12 days. The number of days in which 36 villagers can clean the canal is ?

Options:

- 1) 18
- 2) 8
- 3) 72
- 4) 16

Correct Answer: 8

QUESTION.12 - A and B can do a piece of work in 18 days, B and C in 24 days, A and C in 36 days. Working together they can do the work in

Options:

- 1) 12 days
- 2) 13 days
- 3) 16 days
- 4) 26 days

Correct Answer: 16 days

QUESTION.13 - Ramesh and Rahman can do a work in 20 and 25 days respectively. After doing collectively 10 days of work, they leave the work due to illness and Suresh completes rest of the work in 3 days. How many days Suresh alone can take to complete the whole work ?

Options:

- 1) 32 days
- 2) 28 days
- 3) 29 days
- 4) 30 days

Correct Answer: 30 days

QUESTION.14 - A can do as much work in 4 days as B can do in 5, and B can do as much work in 6 days as C in 7. In what time will C do a piece of work which A can do in a week ?

Options:

- 1) $5/24$ days
- 2) $4/5$ days
- 3) $8/15$ days
- 4) $6/19$ days

Correct Answer:

QUESTION.15 - A can do a piece of work in 10 days and B can do it in 12 days. They work together for 3 days. Then B leaves and A alone continues. 2 days after that C joins and the work is completed in 2 days more. In how many days can C do it, if he works alone ?

Options:

- 1) 30 days
- 2) 50 days
- 3) 40 days
- 4) 60 days

Correct Answer: 40 days

QUESTION.16 - The ratio of the amount of work done by $(x-1)$ labours in $(x+1)$ days and that done by $(x+1)$ labours in $(x+2)$ days is 5 : 6. Then the value of x is

Options:

- 1) 16
- 2) 15
- 3) 17
- 4) 14

Correct Answer: 16

QUESTION.17 - A book seller allowed 10% discount on printed price. He gets 30% commission from publisher. His profit in percent will be

Options:

1) 20

2)

$$28 \frac{4}{7}$$

3) 25

4)

$$26 \frac{3}{7}$$

Correct Answer:

$$28 \frac{4}{7}$$

QUESTION.18 - A dealer is selling an article at a discount of 5% on the Marked price. If the Marked price is 12% above the cost price and the article was sold for Rs. 532 then the cost price is (in Rs.)

Options:

1) 500

2) 525

3) 505

4) 520

Correct Answer: 500

QUESTION.19 - A shopkeeper increases the price of an object by 40% and then sells it at 25% discount on the marked price. If the selling price of such an object be Rs. 2100, its cost price for the shopkeeper was ?

Options:

1) 3000

2) 1500

3) 1750

4) 2000

Correct Answer: 2000

QUESTION.20 -

The marked price of an article is Rs. 5000. But due to a special festive offer a certain percent of discount is declared. Mr. X availed this opportunity and bought the article at reduced price. He then sold it at Rs. 5000 and thereby made a profit of $11 \frac{1}{9}$ %. The percentage of discount allowed was ?

Options:

1) 10

2)

$$3\frac{1}{3}$$

3)

$$7\frac{1}{2}$$

4)

$$11\frac{1}{9}$$

Correct Answer: 10

QUESTION.21 - Find the fraction which bears the same ratio to $\frac{1}{27}$ that $\frac{3}{7}$ does to $\frac{5}{9}$.

Options:

1) $\frac{5}{9}$

2) $\frac{1}{35}$

3) $\frac{45}{7}$

4) $\frac{7}{45}$

Correct Answer: $\frac{1}{35}$

QUESTION.22 - The ratio of number of boys to the number of girls in a school of 432 pupils is 5 : 4. When some new boys and girls are admitted, the number of boys increase by 12 and the ratio of the boys to girls changes to 7 : 6. The number of new girls admitted is

Options:

1) 12

2) 14

3) 24

4) 20

Correct Answer: 24

QUESTION.23 - If the three numbers in the ratio 3:2:5 be such that the sum of the squares is equal to 1862 then which number is the middle one.

Options:

1) 16

2) 14

3) 13

4) 15

Correct Answer: 14

QUESTION.24 - Two bottles contain acid and water in the ratio 2 : 3 and 1 : 2 respectively. These are mixed in the ratio 1 : 3. What is the ratio of acid and water in the new mixture ?

Options:

- 1) 7:13
- 2) 11:57
- 3) 23:37
- 4) 1:3

Correct Answer: 7:13

QUESTION.25 - The ratio of the number of boys and girls in a school is 3:2. If 20% of the boys and 25% of the girls are scholarship holders, the percentage of the school students who are not scholarship holders is

Options:

- 1) 56
- 2) 78
- 3) 70
- 4) 80

Correct Answer: 78

QUESTION.26 - In two types of brass, the ratios of Copper to Zinc are 8:3 and 15:7 respectively. If the two types of brass be melted and mixed in the ratio 5:2 a new type of brass is obtained. The ratio of Copper to Zinc in this new type of brass is

Options:

- 1) 3:2
- 2) 2:3
- 3) 3:4
- 4) 5:2

Correct Answer: 5:2

QUESTION.27 - An hour-long test has 60 problems. If a student completes 30 problems in 25 minutes, then the required seconds he has taken on average for computing each of the remaining problems is

Options:

- 1) 70 seconds
- 2) 50 seconds
- 3) 40 seconds
- 4) 30 seconds

Correct Answer: 70 seconds

QUESTION.28 - A and B have their annual average income Rs. 80,000. B and C have their annual average income Rs. 75,000. C and A have their annual average income Rs. 78,000.

The annual income of A is ?

Options:

- 1) Rs. 81000
- 2) Rs. 82000
- 3) Rs. 83000
- 4) Rs. 84000

Correct Answer: Rs. 83000

QUESTION.29 - A car travels from A to B with 40 Km/h and returns from B to A with 60 Km/h. Its average speed during the whole journey is

Options:

- 1) 48 km/h
- 2) 50 km/h
- 3) 45 km/h
- 4) 60 km/h

Correct Answer: 48 km/h

QUESTION.30 - In the first 10 overs of a cricket game, the run rate was only 3.2. The run rate in the remaining 40 overs to reach the target of 282 runs is

Options:

- 1) 6.4
- 2) 6.3
- 3) 6.25
- 4) 6.5

Correct Answer: 6.25

QUESTION.31 - The average (arithmetic mean) amount of savings of ten students is Rs. 600. Three of the students have no savings at all and each of the others have at least Rs. 250 including Nihar, who has exactly Rs. 1300. The largest amount, in Rs., that any one student could have is

Options:

- 1) 3250
- 2) 3450
- 3) 3650
- 4) 3850

Correct Answer: 3450

QUESTION.32

An Army of 12000 consists of Europeans and Indians. The average height of a European is 5ft 10 inches and that of an Indian is 5ft 9 inches and that of the whole army is $5\text{ft } 9\frac{3}{4}$ inches. Then the number of Indians in the army is ?

Options:

- 1) 3000
- 2) 4000
- 3) 5500
- 4) 2700

Correct Answer: 3000

QUESTION.33 - By what fraction selling price (S.P.) must be multiplied to get the cost price (C.P.) if the loss is 20% ?

Options:

- 1) $\frac{4}{5}$
- 2) $\frac{8}{5}$
- 3) $\frac{5}{4}$
- 4) $\frac{6}{5}$

Correct Answer: $\frac{5}{4}$

QUESTION.34 - A,B and C together start a business. Three times the investment of A equals four times the Investment of B and the Capital of B is twice that of C. The ratio of share of each in the profit.

Options:

- 1) 8:3:6
- 2) 3:8:6
- 3) 3:6:8
- 4) 8:6:3

Correct Answer: 8:6:3

QUESTION.35 - Ramesh sold a book at a loss of 30%. If he had sold it for Rs. 140 more, he would have made a profit of 40%. The cost price of the book is

Options:

- 1) Rs. 280
- 2) Rs. 200
- 3) Rs. 260
- 4) Rs. 300

Correct Answer: Rs. 200

QUESTION.36 - A shopkeeper purchased 510 eggs at the rate of Rs. 20 per dozen. 30 eggs were broken on the way. In order to make a gain of 20%, he must sell the remaining eggs at the rate of

Options:

- 1) Rs. 22.50 per dozen
- 2) Rs. 25.50 per dozen
- 3) Rs. 26 per dozen
- 4) Rs. 26.50 per dozen

Correct Answer: Rs. 25.50 per dozen

QUESTION. 37

A sells a watch to B and makes a loss of 12%. B makes a profit of $12\frac{1}{2}\%$ by selling the watch to C. If A sells the watch to B at the cost of which C purchased it, then the percentage of loss or profit of A will be,

Options:

- 1) 1% loss
- 2) 1% profit
- 3) 2% loss
- 4) 2% profit

Correct Answer: 1% loss

QUESTION.38 - A man buys 3 type-I cakes and 6 type-II cakes for Rs. 900. He sells type-I cakes at a profit of 15% and type-II cakes at a loss of 10%. If his overall profit is

Options:

- 1) 100, 100
- 2) 160, 70
- 3) 180, 60
- 4) 120, 90

Correct Answer: 160, 70

QUESTION.39 - A Number is increased by 20%. To get back to the original number, the increased number is to be reduced by

Options:

1) 20%

2) 21%

3)

$16\frac{2}{3}\%$

4)

$14\frac{1}{3}\%$

Correct Answer:

$16\frac{2}{3}\%$

QUESTION.40 - A Village lost 12% of its goats in a flood and 5% of remainder died from diseases. If the number left now is 8360. What was the original number before the flood?

Options:

1) 1000

2) 10000

3) 1,00,000

4) 8360

Correct Answer: 10000

QUESTION.41 - A scored 72% in a paper with a maximum marks of 900 and 80% in another paper with a maximum marks of 700. If the result is based on the combined percentage of two papers, the combined percentage is

Options:

1) 75.5%

2) 76%

3) 76.5%

4) 77%

Correct Answer: 75.5%

QUESTION.42 - An army lost 10% of its men in war, 10% of the remaining died due to disease and 10% of the rest were declared disabled. Thus the strength of the army was reduced to 7,29,000 active men. The original strength of the army was

Options:

1) 1500000

2) 1000000

3) 1200000

4) 1100000

Correct Answer: 1000000

QUESTION.43 - A bus travels 150 Km in 3 hours and then travel next 2 hours at 60 Km/hr. Then the average speed of the bus will be

Options:

- 1) 55 Km/hr
- 2) 54 Km/hr
- 3) 50 Km/hr
- 4) 60 Km/hr

Correct Answer: 54 Km/hr

QUESTION.44 - A man can cover a certain distance in 3 hours 36 minutes if he walks at the rate of 5 Km/hr. If he covers the same distance on cycle at the rate of 24 Km/hr, then the time taken by him in minutes is

Options:

- 1) 40
- 2) 45
- 3) 50
- 4) 55

Correct Answer: 45

QUESTION.45 - Due to inclement weather, an air plane reduced its speed by 300 Km/ hr, and reached the destination of 1200 km late by 2hrs. Then the schedule duration of the flight was.

Options:

- 1) 1 hour
- 2) 1.5 hour
- 3) 2 hour
- 4) 2.5 hour

Correct Answer: 2 hour

QUESTION.46 - Three runners A,B and C run a race, with runner A finishing 12 meters ahead of runner B and 18 meters ahead of runner C, while runner B finishes 8 meters ahead of runner C. Each runner travels the entire distance at a constant speed. The length of the race is

Options:

- 1) 36 Metres
- 2) 48 Metres
- 3) 60 Metres
- 4) 72 Metres

Correct Answer: 48 Metres

QUESTION.47 - The compound interest on Rs. 4000 for 4 years at 10% per annum will be

Options:

- 1) Rs. 1856.40
- 2) Rs. 1600
- 3) Rs. 1856
- 4) Rs. 1756.60

Correct Answer: Rs. 1856.40

QUESTION.48 - A sum of Rs. 4000 is lent out in two parts, one at 8% simple interest and the other at 10% simple interest. If the annual interest is Rs. 352. The sum lent at 8% is 4000

Options:

- 1) Rs. 2900
- 2) Rs. 2200
- 3) Rs. 2400
- 4) Rs. 3100

Correct Answer: Rs. 2400

QUESTION.49 - If the difference of the compound interest and the simple interest on a sum of money for 3 years is Rs. 186. Find the sum of money, if the rate of interest in both case be 10%

Options:

- 1) Rs. 5500
- 2) Rs.7200
- 3) Rs.6500
- 4) Rs.6000

Correct Answer: Rs.6000

QUESTION.50 - A sum of money is invested at 20% compound interest (compounded annually). It would fetch Rs. 723 more if interest is compounded half-yearly. The sum is

Options:

- 1) Rs.15,000
- 2) Rs.30,000
- 3) Rs.20,000
- 4) Rs.7,500

Correct Answer: Rs.30,000

QUESTION.51 - The height of an equilateral triangle is 18 cm. Its area is

Options:

- 1) $36\sqrt{3}$ sq. m.
- 2) $108\sqrt{3}$ sq. cm.
- 3) 108 sq. cm.
- 4) $96\sqrt{3}$ sq. m.

Correct Answer: $108\sqrt{3}$ sq. cm.

QUESTION.52 - If the sum of radius and height of a solid cylinder is 20 cm and its total surface area is 880 cm² then its volume is

Options:

- 1) 1760 cm³
- 2) 8800 cm³
- 3) 2002 cm³
- 4) 4804 cm³

Correct Answer: 2002 cm³

QUESTION.53 - A solid sphere and a solid hemisphere have the same total surface area. The ratio of their volumes is (Take, $\pi=22/7$)

Options:

- 1) $3\sqrt{3} : 4$
- 2) $4 : 3\sqrt{3}$
- 3) $3 : 4\sqrt{3}$
- 4) $1 : 12\sqrt{3}$

Correct Answer: $3\sqrt{3} : 4$

QUESTION.54 - The sides of a triangle are in the ratio $1/2 : 1/3 : 1/4$ and its perimeter is 104 cm. The length of the longest side (in cm) is

Options:

- 1) 52
- 2) 48
- 3) 32
- 4) 26

Correct Answer: 48

QUESTION.55 - The four walls and ceiling of a room of length 25 m, breadth 12 m and height 10 m are to be painted. Painter A can paint 200 m² in 5 days, Painter B can paint 250 m² in 2 days. If A and B work together, they will finish the job in

Options:

1) 6 days

6 दिन

2)

$6 \frac{10}{33}$ days

$6 \frac{10}{33}$ दिन

3)

$7 \frac{10}{33}$ days

$7 \frac{10}{33}$ दिन

4) 8 days

8 दिन

Correct Answer:

$6 \frac{10}{33}$ days

QUESTION.56 - The base of a right prism is a trapezium whose the length of parallel sides are 25 cm and 11 cm and the perpendicular distance between the parallell sides in 16 cm. If the height of the prism is 10 cm, then the volume of the prism is

Options:

1) 1440 cu.cm

2) 1540 cu.cm

3) 2880 cu.cm

4) 960 cu.cm

Correct Answer: 2880 cu.cm

QUESTION.57 - The external and the internal radii of a hollow right circular cylinder of height 15 cm are 6.75 cm and 5.25 cm respectively. If it is melted to form a solid cylinder of height half of the original cylinder, then the radius of the solid cylinder is

Options:

1) 6 cm

2) 6.5 cm

3) 7 cm

4) 7.25 cm

Correct Answer: 6 cm

QUESTION.58 - The length and breadth of a rectangular piece of a land are in a ratio 5:3. The owner spent Rs. 6000 for surrounding it from all sides at Rs.7.50 per metre. The difference between its length and breadth is

Options:

- 1) 50 metres
- 2) 100 metres
- 3) 150 metres
- 4) 250 metres

Correct Answer: 100 metres

QUESTION.59 - The ratio between the area of a square and that of a circle, when the length of a side of the square is equal to that of the diameter of the circle, is (take $\pi=22/7$)

Options:

- 1) 14 : 11
- 2) 28 : 11
- 3) 7 : 22
- 4) 22 : 7

Correct Answer: 14 : 11

QUESTION.60 - A piece of wire 132 cm long is bent successively in the shape of an equilateral triangle, a square and a circle. Then area will be longest in shape of

Options:

- 1) Circle
- 2) Equilateral triangle
- 3) Square
- 4) Equal in all the shapes

Correct Answer: Circle

QUESTION.61 - If a cone is divided into two parts by drawing a plane through the midpoints of its axis, then the ratio of the volume of the 2 parts of the cone is

Options:

- 1) 1 : 2
- 2) 1 : 4
- 3) 1 : 7
- 4) 1 : 8

Correct Answer: 1 : 7

QUESTION.62 - Two regular polygons are such that the ratio between their number of sides is 1:2 and the ratio of measures of their interior angles is 3:4. Then the number of sides of each polygon are

Options:

- 1) 10, 20
- 2) 4, 8
- 3) 3, 6
- 4) 5, 10

Correct Answer: 5, 10

QUESTION.63 - In an isosceles triangle, the length of each equal side is twice the length of the third side. The ratio of areas of the isosceles triangle and an equilateral triangle with same perimeter is

Options:

- 1) $30\sqrt{5} : 100$
- 2) $32\sqrt{5} : 100$
- 3) $36\sqrt{5} : 100$
- 4) $42\sqrt{5} : 100$

Correct Answer: $36\sqrt{5} : 100$

QUESTION.64 - A right circular cylinder is partially filled with water. Two iron spherical balls are completely immersed in the water so that the height of the water in the cylinder rises by 4 cm. If the radius of one ball is half of the other and the diameter of the cylinder is 18 cm, then the radii of the spherical balls are

Options:

- 1) 6 cm and 12 cm
- 2) 4 cm and 8 cm
- 3) 3 cm and 6 cm
- 4) 2 cm and 4 cm

Correct Answer: 3 cm and 6 cm

QUESTION.65 - The whole surface area of a pyramid whose base is a regular polygon is 340 cm^2 and area of its base is 100 cm^2 . Area of each lateral face is 30 cm^2 . Then the number of lateral faces is

Options:

- 1) 8
- 2) 9
- 3) 7
- 4) 10

Correct Answer: 8

QUESTION.66 - If $P = 99$, then the value of $P(P^2 + 3P + 3)$ is

Options:

- 1) 9999
- 2) 999999
- 3) 99999
- 4) 9999999

Correct Answer: 999999

QUESTION.67

If $x + \frac{1}{x} = c + \frac{1}{c}$ then the value of x

यदि $x + \frac{1}{x} = c + \frac{1}{c}$ तो x का मान बताइए

Options:

- 1) $C, 1/C$
- 2) C, C^2
- 3) $C, 2C$
- 4) $0, 1$

Correct Answer: $C, 1/C$

QUESTION.68 - If the sum of squares of two real numbers is 41 and their sum is 9. Then the sum of cubes of these two numbers is

Options:

- 1) 169
- 2) 209
- 3) 189
- 4) 198

Correct Answer: 189

QUESTION.69 - A complete factorisation of $x^4 + 64$ is

Options:

- 1) $(x^2 + 8)^2$
- 2) $(x^2 + 8)(x^2 - 8)$
- 3) $(x^2 - 4x + 8)(x^2 - 4x - 8)$
- 4) $(x^2 + 4x + 8)(x^2 - 4x + 8)$

Correct Answer: $(x^2 + 4x + 8)(x^2 - 4x + 8)$

QUESTION.70 If $a + b = 1$, then $a^4 + b^4 - a^3 - b^3 - 2a^2b^2 + ab$ is equal to

यदि $a + b = 1$ है, तो $a^4 + b^4 - a^3 - b^3 - 2a^2b^2 + ab$ किसके बराबर होगा ?

Options:

1) 1

2) 2

3) 4

4) 0

Correct Answer: 0

QUESTION.71 - If $x^2 + y^2 + 6x + 5 = 4(x - y)$ then $x - y$ is

Options:

1) 1

2) -1

3) 0

4) 4

Correct Answer: 1

QUESTION.72 - If $a = 299$, $b = 298$, $c = 297$ then the value of $2a^3 + 2b^3 + 2c^3 - 6abc$ is

Options:

1) 5154

2) 5267

3) 5364

4) 5456

Correct Answer: 5364

QUESTION.73

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

Options:

1) 0

2) 1

3) 2

4) 3

Correct Answer: 0

QUESTION.74 - If $x = 1 + \sqrt{2} + \sqrt{3}$, then the value of $2x^4 - 8x^3 - 5x^2 + 26x - 28$ is

Options:

- 1) $2\sqrt{2}$
- 2) $3\sqrt{3}$
- 3) $5\sqrt{5}$
- 4) $6\sqrt{6}$

Correct Answer: $6\sqrt{6}$

QUESTION.75

If $2r = h + \sqrt{r^2 + h^2}$ then the ratio $r:h$ ($r \neq 0$) is

Options:

- 1) 1 : 2
- 2) 2 : 3
- 3) 4 : 3
- 4) 3 : 5

Correct Answer: 4 : 3

QUESTION.76 - In an equilateral triangle ABC, G is the centroid. Each side of the triangle is 6 cm. The length of AG is

Options:

- 1) $2\sqrt{2}$ cm
- 2) $3\sqrt{2}$ cm
- 3) $2\sqrt{3}$ cm
- 4) $3\sqrt{3}$ cm

Correct Answer: $2\sqrt{3}$ cm

QUESTION.77 - PQ is a tangent to the circle at T. If $TR = TS$ where R and S are points on the circle and $\angle RST = 65^\circ$, the $\angle PTS =$

Options:

- 1) 65°
- 2) 130°
- 3) 115°
- 4) 55°

Correct Answer: 115°

QUESTION.78 - In $\triangle ABC$, $AC = BC$ and $\angle ABC = 50^\circ$, the side BC is produced to D so that $BC = CD$ then the value of $\angle BAD$ is

Options:

- 1) 80°
- 2) 40°
- 3) 90°
- 4) 50°

Correct Answer: 90°

QUESTION.79 - In a circle, a diameter AB and a chord PQ (which is not a diameter) intersect each other at X perpendicularly. If $AX : BX = 3 : 2$ and the radius of the circle is 5 cm, then the length of chord PQ is

Options:

- 1) $2\sqrt{13}$ cm
- 2) $5\sqrt{3}$ cm
- 3) $4\sqrt{6}$ cm
- 4) $6\sqrt{5}$ cm

Correct Answer: $4\sqrt{6}$ cm

QUESTION.80 - ABC is a triangle, PQ is line segment intersecting AB in P and AC in Q and $PQ \parallel BC$. The ratio of $AP : BP = 3 : 5$ and length of PQ is 18 cm. The length of BC is

Options:

- 1) 28 cm
- 2) 48 cm
- 3) 84 cm
- 4) 42 cm

Correct Answer: 48 cm

QUESTION.81 - If the parallel sides of a trapezium are 8 cm and 4 cm, M and N are the mid points of the diagonals of the trapezium, then length of MN is

Options:

- 1) 12 cm
- 2) 6 cm
- 3) 1 cm
- 4) 2 cm

Correct Answer: 2 cm

QUESTION.82 - $\triangle ABC$ is isosceles having $AB = AC$ and $\angle A = 40^\circ$. Bisectors PO and OQ of the exterior angles $\angle ABD$ and $\angle ACE$ formed by producing BC on both sides, meet at O. Then the value of $\angle BOC$ is

Options:

- 1) 70°
- 2) 110°
- 3) 80°
- 4) 55°

Correct Answer: 70°

QUESTION.83 - An equilateral triangle of side 6 cm is inscribed in a circle. Then radius of the circle is

Options:

- 1) $2\sqrt{3}$ cm
- 2) $3\sqrt{2}$ cm
- 3) $4\sqrt{3}$ cm
- 4) $\sqrt{3}$ cm

Correct Answer: $2\sqrt{3}$ cm

QUESTION.84 - In a circle with centre O, AB is a diameter and CD is a chord which is equal to the radius OC. AC and BD are extended in such a way that they intersect each other at a point P, exterior to the circle. The measure of $\angle APB$ is

Options:

- 1) 30°
- 2) 45°
- 3) 60°
- 4) 90°

Correct Answer: 60°

QUESTION.85 - Two chords AB and CD of a circle with centre O intersect at P. If $\angle APC = 40^\circ$. Then the value of $\angle AOC + \angle BOD$ is

Options:

- 1) 50°
- 2) 60°
- 3) 80°
- 4) 120°

Correct Answer: 80°

QUESTION.86 - If $x \tan 60^\circ + \cos 45^\circ = \sec 45^\circ$ then the value of $x^2 + 1$ is

Options:

- 1) $6/7$
- 2) $7/6$
- 3) $5/6$
- 4) $6/5$

Correct Answer: $7/6$

QUESTION.87 - x, y be two acute angles, $x + y < 90^\circ$ and $\sin(2x - 20^\circ) = \cos(2y + 20^\circ)$, the value of $\tan(x + y)$ is

Options:

- 1) $\sqrt{3}$
- 2) $1/\sqrt{3}$
- 3) 1
- 4) $2 + \sqrt{2}$

Correct Answer: 1

QUESTION.88 If $a^2\sec^2x - b^2\tan^2x = c^2$ then the value of $\sec^2x + \tan^2x$ is equal to (assume $b^2 \neq a^2$)

यदि $a^2\sec^2x - b^2\tan^2x = c^2$ है, तो $\sec^2x + \tan^2x$ का मान बताइए (यह मानते हुए कि $b^2 \neq a^2$)

Options:

1)

$$\frac{b^2 - a^2 + 2c^2}{b^2 + a^2}$$

2)

$$\frac{b^2 + a^2 - 2c^2}{b^2 - a^2}$$

$$\frac{b^2 - a^2 - 2c^2}{b^2 + a^2}$$

4)

$$\frac{b^2 - a^2}{b^2 + a^2 + 2c^2}$$

Correct Answer:

$$\frac{b^2 + a^2 - 2c^2}{b^2 - a^2}$$

QUESTION.89 - $(1 + \sec 20^\circ + \cot 70^\circ)(1 - \operatorname{cosec} 20^\circ + \tan 70^\circ)$ is equal to

Options:

1) 0

2) 1

3) 2

4) 3

Correct Answer: 2

QUESTION.90 - If $\tan 4\theta + \tan 2\theta = 1$ then the value of $\cos 4\theta + \cos 2\theta$ is

Options:

1) 2

2) 0

3) 1

4) -1

Correct Answer: 1

QUESTION.91 - The value of $8(\sin 6\theta + \cos 6\theta) - 12(\sin 4\theta + \cos 4\theta)$ is equal to

Options:

- 1) 20
- 2) -20
- 3) -4
- 4) 4

Correct Answer: -4

QUESTION.92 - An aeroplane flying horizontally at a height of 3 Km. above the ground is observed at a certain point on earth to subtend an angle of 60° . After 15 sec flight, its angle of elevation is changed to 30° . The speed of the aeroplane (taking $\sqrt{3} = 1.732$) is

Options:

- 1) 230.63 m/sec
- 2) 230.93 m/sec
- 3) 235.85 m/sec
- 4) 236.25 m/sec

Correct Answer: 230.93 m/sec

QUESTION.93 - If the angle of elevation of the sun decreases from 45° to 30° , then the length of the shadow of a pillar increases by 60m. The height of the pillar is

Options:

- 1) $60(\sqrt{3}+1)$ m
- 2) $30(\sqrt{3}-1)$ m
- 3) $30(\sqrt{3}+1)$ m
- 4) $60(\sqrt{3}-1)$ m

Correct Answer: $30(\sqrt{3}+1)$ m

QUESTION.94 - The angle of elevation of the top of a tower, vertically erected in the middle of a paddy field, from two points on a horizontal line through the foot of the tower are given to be α and β ($\alpha > \beta$). The height of the tower is h unit. A possible distance (in the same unit) between the points is

Options:

1)

$$\frac{h (\cot\beta - \cot\alpha)}{\cos(\alpha + \beta)}$$

2) $h(\cot\alpha - \cot\beta)$

3)

$$\frac{h (\tan\beta - \tan\alpha)}{\tan\alpha \tan\beta}$$

4) $h(\cot\alpha + \cot\beta)$

Correct Answer: $h(\cot\alpha + \cot\beta)$

QUESTION.95 - The angle of elevation of the top of an unfinished pillar at a point 150 metres from its base is 30° . The height (in metres) that the pillar must be raised so that its angle of elevation at the same point may be 45° , is (takeing $\sqrt{3} = 1.732$)

Options:

- 1) 63.4
- 2) 86.6
- 3) 126.8
- 4) 173.2

Correct Answer: 63.4

QUESTION.96 -What is the difference between the total sale of English newspapers and the total sale of Hindi newspapers in all the localities together.

Options:

- 1) 7500
- 2) 5600
- 3) 6500
- 4) 5700

Correct Answer: 6500

QUESTION.97 -What is the average of difference of sales of Hindi and English newspapers in all localities ?

Options:

- 1) 2000
- 2) 2300
- 3) 2100
- 4) 2200

Correct Answer: 2300

QUESTION.98 - What is the approximate sum of the ratios of sales of English and Hindi newspapers in all localities ?

Options:

- 1) 4.5
- 2) 5.75
- 3) 6.36
- 4) 7.82

Correct Answer: 6.36

QUESTION.99 - What is the ratio of average number of English newspapers from the localities B, C and E to the average number of Hindi newspapers from the localities A and D ?

Options:

- 1) 10 : 9
- 2) 9 : 10

3) 11 : 9

4) 9 : 11

Correct Answer: 10 : 9

QUESTION.100 - What is the ratio of the average number of sale of English newspapers in localities B and D together to the average sale of Hindi newspapers in all the localities ?

Options:

1) 34 : 43

2) 40 : 33

3) 33 : 40

4) 43 : 33

Correct Answer: 40 : 33

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