APOnline Limited

Notations :

1.Options shown in green color and with ✔ icon are correct.

2.Options shown in red color and with ✖ icon are incorrect.

Question Paper Name :	Paper II Mathematics FRO 26th Sep 2023 Shift 1
Subject Name :	Paper II Mathematics FRO
Actual Answer Key :	Yes
Calculator :	None
Magnifying Glass Required? :	No
Ruler Required? :	No
Eraser Required? :	No
Scratch Pad Required? :	No
Rough Sketch/Notepad Required? :	No
Protractor Required? :	No
Show Watermark on Console? :	Yes
Highlighter :	No
Auto Save on Console?	Yes
Change Font Color :	No
Change Background Color :	No
Change Theme :	No
Help Button :	No
Show Reports :	No
Show Progress Bar :	No
Is this Group for Examiner? :	No
Examiner permission :	Cant View

Show Progress Bar? :	No

Paper II Mathematics FRO

Section type :	Online
Section Negative Marks :	0.33
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Is Section Default? :	null

Question Number : 1 Question Id : 630680383653 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

When a number n is divided by 3, it leaves the remainder 2. What will be the remainder when $(3n + 5)$ is divided by 3?

Options :

1. ✖ -1

2. ✖ 0

3. ✔ 2

4. ✖ 4

Question Number : 2 Question Id : 630680383654 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Based on Euclid's division algorithm, considering the following assertion and reason statements, which of the options is correct?

Assertion (A):

The HCF of 81 and 675 using the Euclidean division algorithm is 27.

Reason (R):

$675 = 81 \times 8 + 27$

$81 = 27 \times 3 + 0$

Options :

1. ✔ Both A and R are true, and R is the correct explanation of A.

2. ✖ Both A and R are true, but R is not the correct explanation of A.

3. ✖ A is true but R is false.

4. ✖ Both A and R are false.

Question Number : 3 Question Id : 630680383655 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

If $5^p \times 2^8 = 10^8$, then the value of p is:

Options :

1. ✖ 4

2. ✔ 8

3. ✖ 16

4. ✖ 32

Question Number : 4 Question Id : 630680383656 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

$9^{3.5} : 2^2 \times 3^5$ is the same as:

Options :

1. ✖ 3 : 2

2. ✖ 9 : 2

3. ✖ 3 : 4

4. ✔ 9 : 4

Question Number : 5 Question Id : 630680383657 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following is the largest?

Options :

1. ✖ $\sqrt{2}$

2. ✖ $\sqrt[3]{4}$

3. ✔ $\sqrt{3}$

4. ✖ $\sqrt[3]{2}$

Question Number : 6 Question Id : 630680383658 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

$7\frac{3}{10}-3\frac{1}{4}-2\frac{3}{5}=?$

Options :

1. ✖ 1.68

2. ✔ 1.45

3. ✖ 1.52

4. ✖ 1.39

Question Number : 7 Question Id : 630680383659 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The value of $\sqrt{14+2\sqrt{45}}$:

Options :

1. ✔ $3+\sqrt{5}$

2. ✖ $3-\sqrt{5}$

3. ✖ $\sqrt{3}+\sqrt{5}$

4. ✖ $\sqrt{3}-\sqrt{5}$

Question Number : 8 Question Id : 630680383660 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

If $a = b^{-\frac{2}{3}}$ and $b = c^{-3}$, then the value of c in terms of a is:

Options :

1. ✔ $\sqrt{a}$

2. ✖ $\sqrt[3]{a}$

3. ✖ a^2

4. ✖ a^3

Question Number : 9 Question Id : 630680383661 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The increase in the price of an item was 25%. The price was then decreased by 20%, and again increased by 10%. The resultant increase in the price is:

Options :

1. ✖ 6%

2. ✖ 8%

3. ✔ 10%

4. ✖ 12%

Question Number : 10 Question Id : 630680383662 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

A train crosses a 110 m long platform in 12 seconds at a speed of 54 km/h. What is the length of the train (in m)?

Options :

1. ✖ 60

2. ✔ 70

3. ✖ 80

4. ✖ 90

Question Number : 11 Question Id : 630680383663 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

A and B together can do a piece of work in 3 days and A alone can do it in 5 days. B alone can do the same piece of work in:

Options :

1. ✔ $7\frac{1}{2}$ days

2. ✖ $2\frac{1}{7}$ days

3. ✖ $7\frac{1}{3}$ days

4. ✖ $5\frac{1}{2}$ days

Question Number : 12 Question Id : 630680383664 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

In what time (in years) will the simple interest be $\frac{2}{5}$ of the principal at 8% per annum?

Options :

1. ✖ 3

2. ✖ 3.5

3. ✔ 5

4. ✖ 5.5

Question Number : 13 Question Id : 630680383665 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

In what time (in years) will ₹8,000 amount to ₹9,261 at 5% per annum, compounded annually?

Options :

1. ✔ 3

2. ✖ $3\frac{1}{2}$

3. ✖ 4

4. ✖ $4\frac{1}{2}$

Question Number : 14 Question Id : 630680383666 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

If a : b = 4 : 3, b : c = 7 : 5 and c : d = 9 : 8, then a : d is equal to:

Options :

1. ✖ 3 : 7

2. ✖ 7 : 3

3. ✖ 10 : 21

4. ✔ 21 : 10

Question Number : 15 Question Id : 630680383667 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The incomes of A and B are in the ratio 3 : 2, and their expenditures are in the ratio 5 : 3. If each of them saves ₹1,000, then match column I with column II in the following table.

Column I	Column II
P) A's income	1. ₹3,000
Q) B's income	2. ₹6,000
R) A's expenditure	3. ₹4,000
S) B's expenditure	4. ₹5,000

Options :

1. ✖ P-1; Q-2; R-3; S-4

2. ✖ P-3; Q-2; R-1; S-4

3. ✔ P-2; Q-3; R-4; S-1

4. ✖ P-4; Q-3; R-2; S-1

Question Number : 16 Question Id : 630680383668 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

If the numerator of a fraction is increased by 15% and the denominator is decreased by 7%, the value of the new fraction becomes $\frac{5}{3}$. The original fraction is:

Options :

1. ✖ $\frac{27}{23}$

2. ✖ $\frac{30}{23}$

3. ✖ $\frac{23}{31}$

4. ✔ $\frac{31}{23}$

Question Number : 17 Question Id : 630680383669 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

If β^2 is a zero of the polynomial $\alpha(x)$, then the divisor of $\alpha(x)$ will be:

Options :

1. ✖ $(x-\beta)^2$

2. ✔ $x-\beta^2$

3. ✖ $(x-\beta)(x+\beta)$

4. ✖ $x+\beta^2$

Question Number : 18 Question Id : 630680383670 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

When a polynomial $f(x)=abx^3-bx+r$ is divided by $g(x)$, it leaves the quotient as bx, and remainder as r. The value of $g(x)$ will be:

Options :

1. ✔ $ax^2 - 1$

2. ✖ $x^2 - 1$

3. ✖ $ax^2 + 1$

4. ✖ $-ax^2 + 1$

Question Number : 19 Question Id : 630680383671 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following statements is true?

Options :

1. ✖ For all integers n, $n^2 + n + 11$ is prime

2. ✖ The number of prime integers less than or equal to 101 is 91.

3. ✖ There exists a finite number of odd prime integers.

4. ✔ There exists a finite number of even prime integers.

Question Number : 20 Question Id : 630680383672 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

What number should be added to 231228 to make it exactly divisible by 11?

Options :

1. ✖ 1

2. ✖ 2

3. ✔ 3

4. ✖ 4

Question Number : 21 Question Id : 630680383673 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The least number of five digits that has 123 as a factor is:

Options :

1. ✖ 10063

2. ✖ 10081

3. ✔ 10086

4. ✖ 10037

Question Number : 22 Question Id : 630680383674 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The first five multiples of 12 are:

Options :

1. ✖ 1, 2, 3, 4, 6

2. ✖ 2, 4, 8, 6, 10

3. ✖ 24, 36, 48, 60, 72

4. ✔ 12, 24, 36, 48, 60

Question Number : 23 Question Id : 630680383675 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The exponent of 3 in the prime factorisation of 3750 is:

Options :

1. ✔ 1

2. ✖ 2

3. ✖ 3

4. ✖ 4

Question Number : 24 Question Id : 630680383676 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

How many positive factors of 200 are there?

Options :

1. ✖ 10

2. ✔ 12

3. ✖ 14

4. ✖ 16

Question Number : 25 Question Id : 630680383677 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The least number which when divided by 12, 15, 20 and 54 leaves in each case a remainder of 8 is:

Options :

1. ✖ 546

2. ✔ 548

3. ✖ 550

4. ✖ 552

Question Number : 26 Question Id : 630680383678 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The HCF and LCM of two numbers are 11 and 363, respectively. If one of the numbers lies between 111 and 129, then that number is:

Options :

1. ✖ 113

2. ✖ 117

3. ✖ 119

4. ✔ 121

Question Number : 27 Question Id : 630680383679 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The largest length (in cm) of the tape to be used to measure a room sides whose distances are 6 m 48 cm, 11 m 52 cm, and 16 m 20 cm, is:

Options :

1. ✖ 72

2. ✔ 36

3. ✖ 32

4. ✖ 45

Question Number : 28 Question Id : 630680383680 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

If $10^{log_{10}(x^2+7x+4)} = 2x-2$, the value of x is:

Options :

1. ✔ –2 and –3

2. ✖ –2 and 3

3. ✖ 2 and –3

4. ✖ 2 and 3

Question Number : 29 Question Id : 630680383681 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The value of $[log_{10}(50log_{10}100)]^3$ is:

Options :

1. ✖ 2

2. ✖ 4

3. ✔ 8

4. ✖ 16

Question Number : 30 Question Id : 630680383682 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

If $log_{0.3}(x-2) > log_{0.09}(x-2)$, then the value of x will lie in the interval:

Options :

1. ✔ $(3,\infty)$

2. ✖ $(-3,-2)$

3. ✖ $(-3,2)$

4. ✖ $(2,3)$

Question Number : 31 Question Id : 630680383683 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

If $a+b=7$, then the value of $(a-2)^7+(b-5)^7$ is:

Options :

1. ✔ 0

2. ✖ 1

3. ✖ 2^7

4. ✖ 5^7

Question Number : 32 Question Id : 630680383684 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Meghavini donated ₹ $(x^2+13x+42)$ for the education of $(x+6)$ children. The amount received by each child, if each of them received an equal amount, is:

Options :

1. ✖ $(x+3)$

2. ✖ $(x+5)$

3. ✔ $(x+7)$

4. ✖ $(x+11)$

Question Number : 33 Question Id : 630680383685 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The graph $\frac{y}{5} = -1$ is a line:

Options :

1. ✖ parallel to x-axis at a distance of 5 units from the origin above the y-axis

2. ✖ makes an intercept –5 on the x-axis

3. ✖ makes an intercept –1 on the x-axis

4. ✔ parallel to x-axis at a distance of 5 units from the origin below the y-axis

Question Number : 34 Question Id : 630680383686 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The number of solutions of the equation $x - 0y + 2 = 0$ is:

Options :

1. ✖ zero

2. ✖ one

3. ✖ three

4. ✔ infinite

Question Number : 35 Question Id : 630680383687 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Based on the linear equations in two variables, consider the following assertion and reason statements, and decide which of the options is correct.

Assertion (A):

The equation of degree one in two variables is called a linear equation.

Reason (R):

The graph of an equation of degree one in two variables is a circle.

Options :

1. ✖ Both A and R are true, and R is the correct explanation of A.

2. ✖ Both A and R are true, but R is not the correct explanation of A.

3. ✔ A is true but R is false

4. ✖ Both A and R are false

Question Number : 36 Question Id : 630680383688 Is Question Mandatory : No Calculator :

None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Consider the linear equation $2x + 3y - 8 = 0$. Another linear equation in two variables such that the geometrical representation of the pair so formed, intersects the other, will be:

Options :

1. ✔ $3x + 2y + 4 = 0$

2. ✖ $4x + 6y - 8 = 0$

3. ✖ $2x + 3y - 8 = 0$

4. ✖ $8x + 12y - 24 = 0$

Question Number : 37 Question Id : 630680383689 Is Question Mandatory : No Calculator :

None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The linear equation $3x - 9y = 13$ has:

Options :

1. ✖ a unique solution

2. ✖ two solutions

3. ✖ no solutions

4. ✔ infinitely many solutions

Question Number : 38 Question Id : 630680383690 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Consider three linear equations $x-3y+6=0$, $2x-6y+12=0$ and $\frac{x}{3}-y+2=0$. The solutions of the second and third equations will:

Options :

1. ✖ change

2. ✔ remain the same

3. ✖ change in case of multiplication only

4. ✖ change in case of division only

Question Number : 39 Question Id : 630680383691 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The solution of the equations $2x-3y=2$ and $x+3y=4$ is:

Options :

1. ✔ 2 and $\frac{2}{3}$

2. ✖ 2 and $\frac{3}{2}$

3. ✖ 3 and $\frac{2}{3}$

4. ✖ 2 and 3

Question Number : 40 Question Id : 630680383692 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Select the correct option based on the following statement.

Statement:

Consider the relation $c1/c2 = d1/d2 = p1/p2$, where $c1, c2, d1, d2, p1, p2$ are real numbers.

Conclusion:

I. The lines representing the pair of linear equations $c1x + d1y + p1 = 0$ and $c2x + d2y + p2 = 0$ are coincident.

II. The pair of linear equations $c1x + d1y + p1 = 0$ and $c2x + d2y + p2 = 0$ has infinitely many solutions.

Options :

1. ✖ Only conclusion I is correct

2. ✖ Only conclusion II is correct

3. ✖ Both conclusions I and II are incorrect

4. ✔ Both conclusions I and II are correct

Question Number : 41 Question Id : 630680383693 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

For what value of p, do the system of equations $px - 5y = 2$ and $5x + 5y = 3$ represent two lines intersecting at a single point?

Options :

1. ✔ $p \epsilon \mathbb{R} - \{-5\}$

2. ✖ $p \epsilon \mathbb{R} - \{1\}$

3. ✖ $p \epsilon \mathbb{R} - \{5\}$

4. ✖ $p = -5$

Question Number : 42 Question Id : 630680383694 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The values of x and y in the following pair of linear equations are, respectively, _____ and _____.

$$\frac{1}{2x}+\frac{1}{3y}=1, \frac{1}{3x}+\frac{1}{2y}=\frac{5}{6}$$

Options :

1. ✔ $\frac{5}{8}; \frac{5}{3}$

2. ✖ $\frac{5}{3}; \frac{5}{8}$

3. ✖ $\frac{5}{8}; -\frac{5}{3}$

4. ✖ $-\frac{5}{3}; \frac{5}{8}$

Question Number : 43 Question Id : 630680383695 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The pair of equations $y = \frac{11}{2}$ and $y = -\frac{11}{2}$ has:

Options :

1. ✔ no solution

2. ✖ two solutions

3. ✖ one solution

4. ✖ infinitely many solutions

Question Number : 44 Question Id : 630680383696 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

If the lines $10x + ky = 2$ and $2x + 3y = -1$ are parallel, then the value of k is:

Options :

1. ✖ 13

2. ✔ 15

3. ✖ 10

4. ✖ 5

Question Number : 45 Question Id : 630680383697 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The equations $3x - ry + 7 = 0$ and $6x - 10y + 15 = 0$ have no solution for:

Options :

1. ✖ $r = -3$

2. ✖ $r = -5$

3. ✖ $r = 3$

4. ✔ $r = 5$

Question Number : 46 Question Id : 630680383698 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

If $\left(x + \frac{1}{x}\right)^2 = 3$, then the value of $(x^{90} + x^{72} + x^{66} + x^{54} + x^{36} + x^{24} + x^6 - 3)$ is:

Options :

1. ✔ -4

2. ✖ -3

3. ✖ -2

4. ✖ -1

Question Number : 47 Question Id : 630680383699 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

If p is subtracted from the polynomial $(x^2 - 15x + 59)$ so that $(x - 21)$ is the factor of the resulting polynomial, then the value of p is:

Options :

1. ✖ 150

2. ✖ 165

3. ✔ 185

4. ✖ 205

Question Number : 48 Question Id : 630680383700 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The bi-quadratic polynomial from among the following is:

Options :

1. ✖ $x^3 - x + 9$

2. ✔ $(x^2 - 15x + 59)(x^2 - 9)$

3. ✖ $x^6 - x^2 + 3$

4. ✖ $x^8 - 5x + 5$

Question Number : 49 Question Id : 630680383701 Is Question Mandatory : No Calculator :

None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

If two roots of the cubic polynomial $x^3 - 2x^2 - 13x - 10$ are -2 and -1, then the third root is:

Options :

1. ✖ -3

2. ✖ -2

3. ✖ -5

4. ✔ 5

Question Number : 50 Question Id : 630680383702 Is Question Mandatory : No Calculator :

None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Match column I with column II in the following table:

Column I	Column II
A. Polynomial with one degree	P. Not polynomial
B. $\sqrt{2x} - 1$	Q. Cubic polynomial
C. $\sqrt{11\pi}$	R. Linear polynomial
D. A polynomial $f(x)$ cuts the x-axis at three points	S. Polynomial with degree zero

Options :

1. ✖ A-S; B-Q; C-P; D-R

2. ✔ A-R; B-P; C-S; D-Q

3. ✖ A-S; B-P; C-Q; D-R

4. ✖ A-R; B-Q; C-P; D-S

Question Number : 51 Question Id : 630680383703 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

If p and q are the roots of the quadratic equation $x^2 - 5x + 7 = 0$, then the quadratic equation whose roots are $p^2 - 5p + 13$ and $q^2 - 5q + 7$, is:

Options :

1. ✖ $x^2 + 6x = 0$

2. ✔ $x^2 - 6x = 0$

3. ✖ $x^2 - 4x = 0$

4. ✖ $x^2 + 4x = 0$

Question Number : 52 Question Id : 630680383704 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Given that one of the zeros of the cubic polynomial $ax^3 + bx^2 + cx + d = 0$ is zero, the sum of the reciprocals of the other two roots is:

Options :

1. ✔ $-\frac{b}{c}$

2. ✖ 0

3. ✖ $\frac{b}{c}$

4. ✖ $-\frac{b}{a}$

Question Number : 53 Question Id : 630680383705 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which term of the series 72, 63, 54, ... is zero?

Options :

1. ✖ 7^{th}

2. ✖ 8^{th}

3. ✔ 9^{th}

4. ✖ 11^{th}

Question Number : 54 Question Id : 630680383706 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

If 7 times the seventh term of an Arithmetic Progression (AP) is equal to 11 times its eleventh term, then the 18^{th} term of the AP will be:

Options :

1. ✖ -1

2. ✔ 0

3. ✖ 1

4. ✖ 2

Question Number : 55 Question Id : 630680383707 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The n^{th} term of an Arithmetic Progression (AP) $6, 2, -2, -6, -10, \ldots$ is:

Options :

1. ✖ $4n - 10$

2. ✔ $10 - 4n$

3. ✖ $10 + 4n$

4. ✖ $4n + 10$

Question Number : 56 Question Id : 630680383708 Is Question Mandatory : No Calculator :

None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The first odd number is 1, the 2^{nd} odd number is 3, the 3^{rd} odd number is 5 and so on. The 201^{st} odd number is:

Options :

1. ✖ 201

2. ✖ 301

3. ✔ 401

4. ✖ 501

Question Number : 57 Question Id : 630680383709 Is Question Mandatory : No Calculator :

None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The values of k for which the quadratic equation $(3k+1)x^2+2(k+1)x+1=0$ has equal roots, are:

Options :

1. ✔ $0, 1$

2. ✖ $0, 2$

3. ✖ $0, -1$

4. ✖ $1, -2$

Question Number : 58 Question Id : 630680383710 Is Question Mandatory : No Calculator :

None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The roots of the quadratic equation $(b-c)x^2 + (c-a)x + (a-b) = 0$, where $a+c \neq 2b$ are:

Options :

1. ✖ real and equal

2. ✔ real and unequal

3. ✖ complex and equal

4. ✖ complex and unequal

Question Number : 59 Question Id : 630680383711 Is Question Mandatory : No Calculator :

None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The ratio of the sum to the product of the roots of the quadratic equation $(k+1)x^2 - k^2x - k^3 = 0$ is:

Options :

1. ✖ $\frac{1}{k}$

2. ✖ $-\frac{1}{k^2}$

3. ✔ $-\frac{1}{k}$

4. ✖ $\frac{1}{k^3}$

Question Number : 60 Question Id : 630680383712 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The roots of the quadratic equation $2x^2 + 2\sqrt{2}x + 1 = 0$ are:

Options :

1. ✖ $\frac{1}{\sqrt{2}}, \frac{1}{\sqrt{2}}$

2. ✖ $-\sqrt{2}, -\sqrt{2}$

3. ✔ $-\frac{1}{\sqrt{2}}, -\frac{1}{\sqrt{2}}$

4. ✖ $\frac{1}{\sqrt{2}}, \sqrt{2}$

Question Number : 61 Question Id : 630680383713 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following is NOT a quadratic equation?

Options :

1. ✖ $x^2 - 36 = 0$

2. ✖ $2x^2 + 4x - 5 = 0$

3. ✖ $5 + x + x^2 = 0$

4. ✔ $3 + x + x^3 = 0$

Question Number : 62 Question Id : 630680383714 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Two chords AB and AC of a circle subtend angles equal to $80°$ and $140°$, respectively, at the centre. If AB and AC lie on the opposite sides of the centre, then the value of $\angle BAC$ is:

Options :

1. ✖ $40°$

2. ✔ $70°$

3. ✖ $140°$

4. ✖ $280°$

Question Number : 63 Question Id : 630680383715 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The common tangent of the two touching circles $2x^2 + 2y^2 + 6x - 2y - 7 = 0$ and $2x^2 + 2y^2 - 4x + 7y + 9 = 0$ is:

Options :

1. ✔ $10x - 9y - 16 = 0$

2. ✖ $10x + 9y + 16 = 0$

3. ✖ $10x - 9y + 16 = 0$

4. ✖ $10x + 9y - 16 = 0$

Question Number : 64 Question Id : 630680383716 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Based on a circle, consider the following assertion and reason statements. Which of the options is correct?

Assertion (A):

Through three collinear points a circle can be drawn.

Reason (R):

A circle can pass through only two collinear points as well as through three collinear points.

Options :

1. ✖ Both A and R are true, but R is not the correct explanation of A.

2. ✖ Both A and R are true, and R is the correct explanation of A.

3. ✖ A is true but R is false.

4. ✔ Both A and R are false.

Question Number : 65 Question Id : 630680383717 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The angles of a cyclic quadrilateral ABCD are, A = (6x + 10)°, B = (5x)°, C = (x + y)°, and D = (3y − 10)°. The values of x and y are:

Options :

1. ✖ $x = 20°$ and $y = 10°$

2. ✔ $x = 20°$ and $y = 30°$

3. ✖ $x = 44°$ and $y = 15°$

4. ✖ $x = 15°$ and $y = 15°$

Question Number : 66 Question Id : 630680383718 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Let S be a circle with centre O in which chord PQ = chord RS = 7 cm. Based on this information, select the correct option.

Options :

1. ✔ $\angle POQ = \angle ROS$

2. ✖ $\angle POQ < \angle ROS$

3. ✖ $\angle POQ$ and $\angle ROS$ are not related

4. ✖ $\angle POQ > \angle ROS$

Question Number : 67 Question Id : 630680383719 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

let AB and CD be two chords in circle with centre O such that the distances of the chords AB and CD from O are 6 cm.

If |CD| = 6 cm, then the length of AB is:

Options :

1. ✖ 3 cm

2. ✔ 6 cm

3. ✖ 9 cm

4. ✖ 12 cm

Question Number : 68 Question Id : 630680383720 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

If a point is in the 4^{th} quadrant, then it is of the form:

Options :

1. ✔ $(+,-)$

2. ✖ $(-,+)$

3. ✖ $(-,-)$

4. ✖ $(+,+)$

Question Number : 69 Question Id : 630680383721 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Coordinate geometry studies:

Options :

1. ✖ the counting of numbers

2. ✖ how to find the cube root of a number

3. ✔ how to locate a point in a plane precisely

4. ✖ the creation of shapes

Question Number : 70 Question Id : 630680383722 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The perpendicular distance between the straight lines $6x + 8y + 24 = 0$ and $3x + 4y + 14 = 0$ is:

Options :

1. ✖ 1 units

2. ✔ $\frac{2}{5}$ units

3. ✖ $\frac{3}{5}$ units

4. ✖ $\frac{5}{2}$ units

Question Number : 71 Question Id : 630680383723 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The distance of the point $(p-q, p+q)$ from the origin is:

Options :

1. ✖ $\sqrt{2}(p+q)$

2. ✖ $|p-q|+|p+q|$

3. ✖ $2\sqrt{p^2+q^2}$

4. ✔ $\sqrt{2}\sqrt{p^2+q^2}$

Question Number : 72 Question Id : 630680383724 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

If $(-4, \frac{4m}{5})$ is the mid-point of the segment joining the points $(-6,5)$ and $B(-2,3)$, then the value of m is:

Options :

1. ✖ -4

2. ✖ 4

3. ✔ 5

4. ✖ -5

Question Number : 73 Question Id : 630680383725 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The pair of equations $\frac{x}{3} = -2$ and $\frac{y}{5} = -2$ graphically represents lines which are intersecting at

Options :

1. ✖ $(-2,-2)$

2. ✖ $(2,2)$

3. ✖ $(6,10)$

4. ✔ $(-6,-10)$

Question Number : 74 Question Id : 630680383726 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Based on the intersecting lines, consider the following assertion and reason statements. Then which of the options is correct?

Assertion (A): The straight lines $7x - 4y = 10$ and $3x - 4y = -2$ are intersecting lines.

Reason (R): The angle α between the straight lines $7x - 4y = 10$ and $3x - 4y = -2$ satisfies $\tan(\alpha) = \frac{16}{37}$.

Options :

1. ✖ Both A and R are true, but R is not the correct explanation of A.

2. ✔ Both A and R are true, and R is the correct explanation of A.

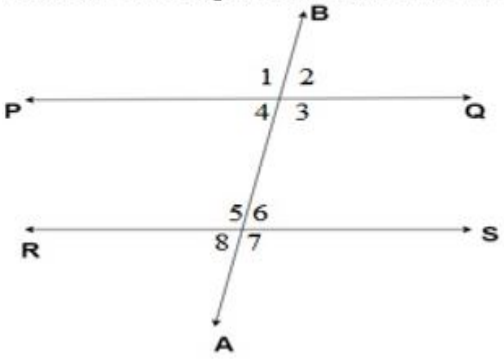
3. ✖ A is true but R is false

4. ✖ Both A and R are false

Question Number : 75 Question Id : 630680383727 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

From the diagram given below, if a transversal intersects two parallel lines, then what is the relation between pair of alternate interior angles $\angle 3$ and $\angle 6$?



Options :

1. ✖ $\angle 3 + \angle 6 = 90°$

2. ✖ $\angle 3 = \angle 6$

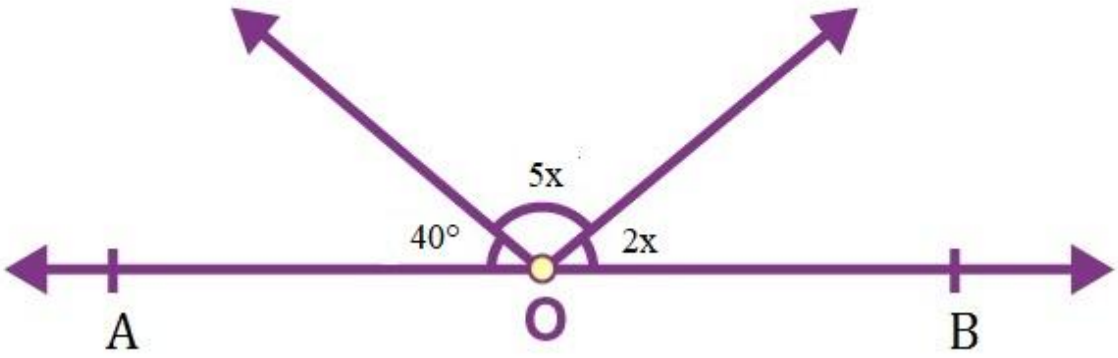
3. ✔ $\angle 3 + \angle 6 = 180°$

4. ✖ $\angle 3 > \angle 6$

Question Number : 76 Question Id : 630680383728 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The value of x from the given figure, where AOB is a line, is



Options :

1. ✖ 15°

2. ✔ 20°

3. ✖ 25°

4. ✖ 35°

Question Number : 77 Question Id : 630680383729 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

If two interior angles on the same side of a transversal intersecting two parallel lines are in the ratio 4 : 5, then the greater of the two angles is:

Options :

1. ✖ 55°

2. ✔ 100°

3. ✖ 125°

4. ✖ $154°$

Question Number : 78 Question Id : 630680383730 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

In a parallelogram PQRS, the angles R and S are in the ratio $4:5$. The angle R is how much?

Note: For this question, discrepancy is found in question/answer. So,this question is ignored for all candidates.

Options :

1. $40°$

2. $60°$

3. $100°$

4. $90°$

Question Number : 79 Question Id : 630680383731 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

In the given ΔABC, Z is the mid-point of the median AD. If the area of ΔABC is 18 m^2, find the area of ΔBZC.

Options :

1. ✖ $6\ m^2$

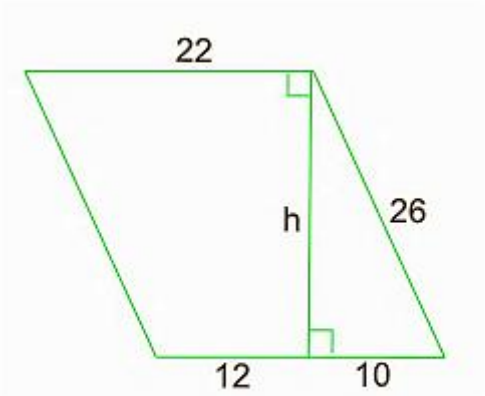
2. ✖ $8\ m^2$

3. ✔ $9\ m^2$

4. ✖ $18\ m^2$

Question Number : 80 Question Id : 630680383732 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33



The area of the given parallelogram is:

Options :

1. ✖ 484 units

2. ✔ $528\ units^2$

3. ✖ $572\ units^2$

4. ✖ $576\ units^2$

Question Number : 81 Question Id : 630680383733 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Select the option that is true regarding the following two statements labelled Assertion and Reason.

Assertion: If the diagonals of a parallelogram ABCD are equal, then $\angle ABC = 90°$.

Reason: If the diagonals of a parallelogram are equal, it becomes a rectangle.

Options :

1. ✔ Assertion and reason are true, and reason is the correct explanation of assertion.

2. ✖ Both assertion and reason are true, but reason is not the correct explanation of assertion.

3. ✖ Assertion is true, but reason is false.

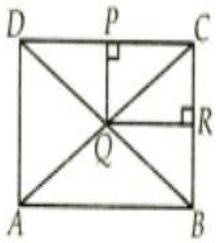
4. ✖ Assertion is false, but reason is true.

Question Number : 82 Question Id : 630680383734 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Select the option that is true regarding the following two statements labelled Assertion and Reason.

Assertion: If ABCD and PQRC are rectangles, and Q is the midpoint of AC, then CR = RB.



Reason: The line segment joining the midpoint of any two sides of a triangle is parallel to the third side and equal to half of it.

Options :

1. ✖ Assertion and reason are true, and reason is the correct explanation of assertion.

2. ✔ Both assertion and reason are true, but reason is not the correct explanation of assertion.

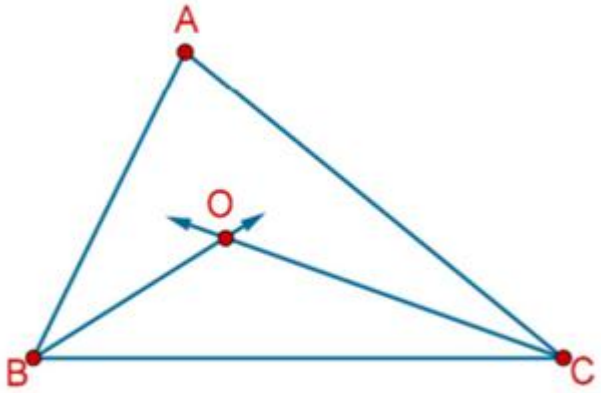
3. ✖ Assertion is true, but reason is false.

4. ✖ Assertion is false, but reason is true.

Question Number : 83 Question Id : 630680383735 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

In the given figure, the bisectors of $\angle ABC$ and $\angle BCA$ meet at point O.



If $\angle BOC = 100$, then $\angle A$ equals _____ degrees.

Options :

1. ✖ 10°

2. ✖ 15°

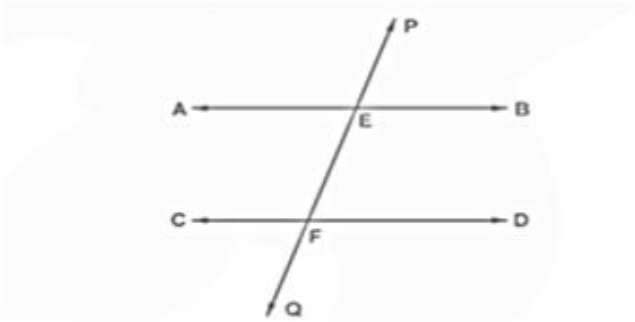
3. ✔ 20°

4. ✖ 25°

Question Number : 84 Question Id : 630680383736 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Observe the given figure and answer the question that follows.



If AB || CD and ∠BEF = 3P + 30°, ∠EFD = 2P + 20°, then the value of P is:

Options :

1. ✖ 10°

2. ✖ 16°

3. ✖ 18°

4. ✔ 26°

Question Number : 85 Question Id : 630680383737 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The sides of similar triangles ΔPQR and ΔDEF are in the ratio 3 : 7. If the area of ΔPQR is 63 sq. cm, then the area of ΔDEF is:

Options :

1. ✖ 434 sq. cm

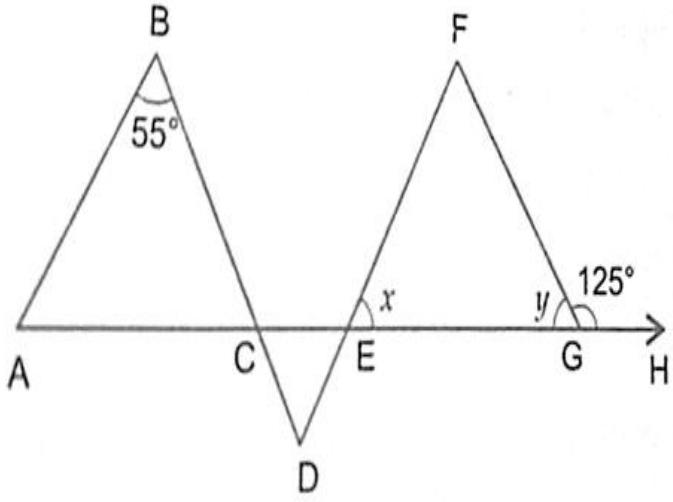
2. ✔ 343 sq. cm

3. ✖ 334 sq. cm

4. ✖ 243 sq. cm

Question Number : 86 Question Id : 630680383738 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33



If AB ∥ DE and BD ∥ FG such that $\angle FGH = 125^\circ$ and $\angle B = 55^\circ$, then what are the values of x and y?

Options :

1. ✔ $x = 70^\circ$ and $y = 55^\circ$

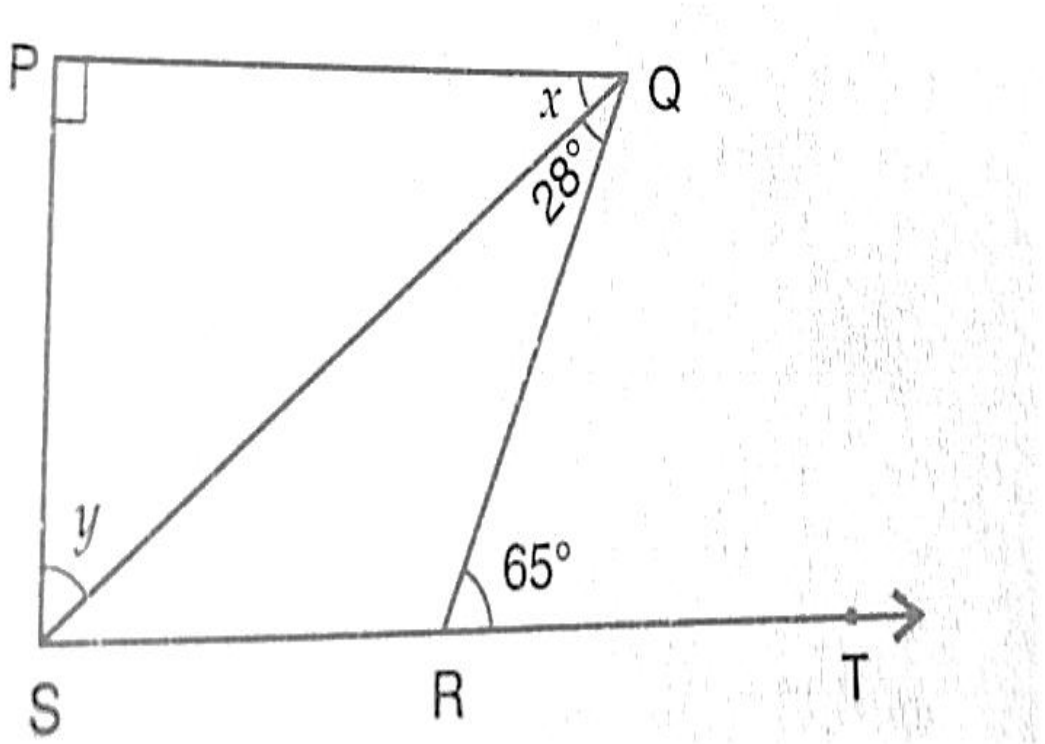
2. ✖ $x = 75^\circ$ and $y = 50^\circ$

3. ✖ $x = 80^\circ$ and $y = 45^\circ$

4. ✖ $x = 70^\circ$ and $y = 50^\circ$

Question Number : 87 Question Id : 630680383739 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33



If PQ ⊥ PS and PQ ∥ SR such that $\angle SQR = 28^\circ$ and $\angle QRT = 65^\circ$, then what are the values of x and y?

Options :

1. ✖ $x = 53^\circ$ and $y = 37^\circ$

2. ✖ $x = 60^\circ$ and $y = 30^\circ$

3. ✖ $x = 30^\circ$ and $y = 60^\circ$

4. ✔ $x = 37^\circ$ and $y = 53^\circ$

Question Number : 88 Question Id : 630680383740 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

In triangle XYZ, XY is the shortest side and 30° is the measure of angle Y. Find the range of possible measures for angle X.

Options :

1. ✖ $110° < X < 150°$

2. ✔ $120° < X < 150°$

3. ✖ $0° < X < 30°$

4. ✖ $30° < X < 60°$

Question Number : 89 Question Id : 630680383741 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

ΔABC and ΔBDE are two equilateral triangles such that D is the mid-point of BC. If the areas of ΔBDE is 14 sq. m, then the area of ΔABC is:

Options :

1. ✖ 32 sq. m

2. ✖ 42 sq. m

3. ✖ 52 sq. m

4. ✔ 56 sq. m

Question Number : 90 Question Id : 630680383742 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following sets of numbers is forming Pythagorean triplets?

i. 36, 27, 45

ii. 13, 12, 5

iii. $\sqrt{6}$, 7, 1

Options :

1. ✖ Only ii

2. ✔ Only i and ii

3. ✖ Only i and iii

4. ✖ i, ii and iii

Question Number : 91 Question Id : 630680383743 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

In ΔABC, if the median $AD = \frac{1}{2}BC$, then $\angle BAC$ is:

Options :

1. ✔ $90°$

2. ✖ $60°$

3. ✖ 45°

4. ✖ 75°

Question Number : 92 Question Id : 630680383744 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Find the area of a triangle two sides of which are 15 cm and 12 cm and whose perimeter is 40 cm.

Options :

1. ✖ $10\sqrt{7}\ \text{cm}^2$

2. ✖ $10\sqrt{14}\ \text{cm}^2$

3. ✖ $20\sqrt{7}\ \text{cm}^2$

4. ✔ $20\sqrt{14}\ \text{cm}^2$

Question Number : 93 Question Id : 630680383745 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Let's say the sides of a triangle are given as 5x, 6x and 7x. Find the expression for the area of the triangle.

Options :

1. ✖ $8x^2$

2. ✖ $\sqrt{3}x^2$

3. ✔ $6\sqrt{6}x^2$

4. ✖ $8\sqrt{3}x^2$

Question Number : 94 Question Id : 630680383746 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Find the area of a circle if the area of its sector is 132 sq. cm and the angle subtended at the centre of the circle is 80°.

Options :

1. ✖ 424 sq. cm

2. ✖ 494 sq. cm

3. ✔ 594 sq. cm

4. ✖ 694 sq. cm

Question Number : 95 Question Id : 630680383747 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Calculate the arc length when r = 6 cm and θ = 60°.

Options :

1. ✔ $\frac{44}{7}$

2. ✖

$\frac{55}{7}$

3. ✖ $\frac{66}{7}$

4. ✖ $\frac{88}{7}$

Question Number : 96 Question Id : 630680383748 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Select the option that is true regarding the following two statements labelled Assertion and Reason.

Assertion: Area of the square inscribed in a circle of radius r is $2r^2$ sq.

Reason: Area of the major segment of a circle = Area of the circle − Area of the minor segment

Options :

1. ✖ Both Assertion and Reason are true, and Reason is the correct explanation of Assertion.

2. ✔ Both Assertion and Reason are true, but Reason is not the correct explanation of Assertion.

3. ✖ Assertion is true, but Reason is false.

4. ✖ Assertion is false, but Reason is true.

Question Number : 97 Question Id : 630680383749 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Select the option that is true regarding the following two statements labelled Assertion and Reason.

Assertion: If a wire of length 44 cm is bent in the shape of a circle, then the area of the circle so formed is 140 cm^2.

Reason: Circumference of the circle = Length of the wire

Options :

1. ✖ Both Assertion and Reason are true, and Reason is the correct explanation of Assertion.

2. ✖ Both Assertion and Reason are true, but Reason is not the correct explanation of Assertion.

3. ✖ Assertion is true, but Reason is false.

4. ✔ Assertion is false, but Reason is true.

Question Number : 98 Question Id : 630680383750 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The angle between any two sides of a parallelogram is 90 degrees. If the lengths of the two adjacent sides are 5 cm and 4 cm, respectively, then find the area.

Options :

1. ✖ 10 sq. cm

2. ✖ 15 sq. cm

3. ✔ 20 sq. cm

4. ✖ 25 sq. cm

Question Number : 99 Question Id : 630680383751 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The base of a parallelogram is four times its height. If its area is $784\ cm^2$, find the base and height.

Options :

1. ✖ 58 cm

2. ✔ 56 cm

3. ✖ 36 cm

4. ✖ 22 cm

Question Number : 100 Question Id : 630680383752 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Select the option that is true regarding the following two statements labelled Assertion and Reason.

Assertion: Area of a rhombus whose side is 10 cm and one diagonal is 12 cm is $96\ cm^2$.

Reason: All sides of the rhombus are equal.

Options :

1. ✔ Both Assertion and Reason are true, and Reason is the correct explanation of Assertion.

2. ✖ Both Assertion and Reason are true, but Reason is not the correct explanation of Assertion.

3. ✖ Assertion is true, but Reason is false.

4. ✖ Assertion is false, but Reason is true.

Question Number : 101 Question Id : 630680383753 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Consider a right-angled triangle. The areas of three squares drawn on each of its sides are 25 sq. m, 144 sq. m and 169 sq. m, respectively. What is the area of the triangle?

Options :

1. ✖ 24 sq. m

2. ✔ 30 sq. m

3. ✖ 32.5 sq. m

4. ✖ 78 sq. m

Question Number : 102 Question Id : 630680383754 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

State whether the following statements are True and False.

I. All equilateral triangles are similar.

II. All isosceles triangles are similar.

III. If two sides and the perimeter of one triangle are, respectively, three times the corresponding sides and the perimeter of the other triangle, then the two triangles are similar.

IV. If the sides of two similar triangles are in the ratio 6 : 13, the areas of these triangles are in the ratio 169 : 36.

Options :

1. ✖

I. False

II. False

III. True

IV. False

I. True

II. False

III. True

2. ✔ IV. False

I. True

II. True

III. True

3. ✖ IV. False

I. True

II. False

III. True

4. ✖ IV. True

Question Number : 103 Question Id : 630680383755 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The ratio of the areas of two similar triangles is equal to:

i. the ratio of the square of any two corresponding sides

ii. the ratio of the squares of the corresponding altitudes

iii. the ratio of the squares of the corresponding medians

iv. the inverse ratio of the corresponding angle bisector segments

Options :

1. ✖ i-True, ii-True, iii-True, iv-True

2. ✖ i-True, ii-False, iii-True, iv-True

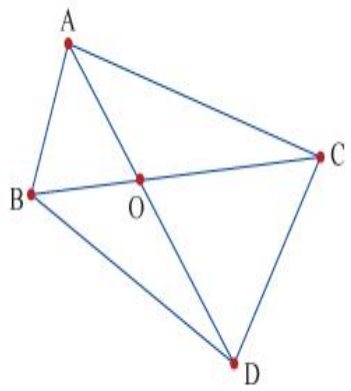
3. ✖ i-True, ii-True, iii-False, iv-True

4. ✔ i-True, ii-True, iii-True, iv-False

Question Number : 104 Question Id : 630680383756 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

In the figure below, $\triangle ABC$ and $\triangle DBC$ are two triangles drawn on the same base BC. AD intersects BC at O.



The ratio ar($\triangle ABC$) : ar($\triangle DBC$) is equal to which of the following?

Options :

1. ✖ BO : CO

2. ✖ $BO^2 : CO^2$

3. ✔ AO : DO

4. ✖ $AO^2 : DO^2$

Question Number : 105 Question Id : 630680383757 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The ratio of the area of an equilateral triangle described on the side of a square to the area of the equilateral triangle described on its diagonal is:

Options :

1. ✖ 1 : 1

2. ✔ 1 : 2

3. ✖ 2 : 1

4. ✖ 2 : 3

Question Number : 106 Question Id : 630680383758 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

If the radius of two circles are in the ratio 3 : 7, then their perimeter are in the ratio:

Options :

1. ✖ 9 : 49

2. ✔ 3 : 7

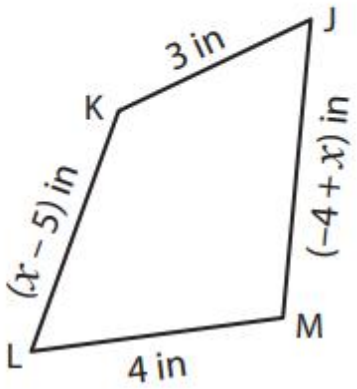
3. ✖ 49 : 9

4. ✖ 7 : 3

Question Number : 107 Question Id : 630680383759 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

If the perimeter of the given quadrilateral is 16 inches, then the value of x is:



Options :

1. ✖ 7 inches

2. ✖ 8 inches

3. ✔ 9 inches

4. ✖ 10 inches

Question Number : 108 Question Id : 630680383760 Is Question Mandatory : No Calculator :

None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The height of a cone whose radius is 7 inches and curved surface area is 550 in^2 is:

Options :

1. ✖ 25 inches

2. ✔ 24 inches

3. ✖ 23 inches

4. ✖ 22 inches

Question Number : 109 Question Id : 630680383761 Is Question Mandatory : No Calculator :

None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

What is the ratio of the curved surface area of a cylinder and a cone having the same radius?

Options :

1. ✔ $2h : l$

2. ✖ $2 : l$

3. ✖ $h : 3l$

4. ✖ $h : l + h$

Question Number : 110 Question Id : 630680383762 Is Question Mandatory : No Calculator :

None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

If a cylinder's radius and height are in the ratio of 7 : 5, respectively, and their sum is 72 inches, then the total surface area of the cylinder is:

Options :

1. ✖ 7920 sq. inches

2. ✖ 15,840 sq. inches

3. ✔ 19,008 sq. inches

4. ✖ 55,440 sq. inches

Question Number : 111 Question Id : 630680383763 Is Question Mandatory : No Calculator :

None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The space diagonal of an ice cube is 20 units. After 10 minutes, it reduced 25%. Find its reduced lateral area.

Options :

1. ✖ 100 sq. units

2. ✖ 200 sq. units

3. ✖ 240 sq. units

4. ✔ 300 sq. units

Question Number : 112 Question Id : 630680383764 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Ajay wants to paint 4 identical doors of cuboidal shape with dimensions 0.6 m, 2 m and 5 cm. 1 litre of paint will cover 2 m^2. How much paint is required to paint all the 4 doors?

Options :

1. ✖ 4.2 litres

2. ✖ 4.32 litres

3. ✖ 5 litres

4. ✔ 5.32 litres

Question Number : 113 Question Id : 630680383765 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The radius of a cylinder has been halved, and the height has been tripled. Find the ratio of the new lateral surface area to the old lateral surface area of the cylinder.

Options :

1. ✖ 1 : 1

2. ✖ 1 : 2

3. ✖ 2 : 1

4. ✔ 3 : 2

Question Number : 114 Question Id : 630680383766 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Match the following.

a. Lateral Surface Area of Cylinder	1. $2\pi r(r + h)$
b. Total Surface Area of Cylinder	2. $\pi r^2 h$
c. Volume of Cylinder	3. $2\pi rh$

Options :

1. ✖ a-1, b-2, c-3

2. ✖ a-1, b-3, c-2

3. ✔ a-3, b-1, c-2

4. ✖ a-2, b-1, c-3

Question Number : 115 Question Id : 630680383767 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

If the volume of a sphere has grown 8 times, then how many times has the surface area grown in the meanwhile?

Options :

1. ✖ 2 times

2. ✔ 4 times

3. ✖ 8 times

4. ✖ 16 times

Question Number : 116 Question Id : 630680383768 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

State whether the following statements are true or false.

a) The sum of the areas of all 6 side faces of a cube is its lateral area.

b) The formula to find the lateral area of a cube is LSA $= 4x^2$.

Options :

1. ✖ a-True, b-True

2. ✖ a-True, b-False

3. ✔ a-False, b-True

4. ✖ a-False, b-False

Question Number : 117 Question Id : 630680383769 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Find the total surface area of a cone whose radius is 7 inches and lateral surface area is 154 in^2.

Options :

1. ✖ $154\ in^2$

2. ✖ $176\ in^2$

3. ✔ $308\ in^2$

4. ✖ $330\ in^2$

Question Number : 118 Question Id : 630680383770 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The difference between the surface area of a cylinder and its curved surface area will give us:

Options :

1. ✖ area of its base

2. ✔ double the area of its base

3. ✖ half the area of its base

4. ✖ thrice the area of its base

Question Number : 119 Question Id : 630680383771 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

A solid cube of side 7 cm is melted to make a cone of height 5 cm. Find the radius of the base of the cone.

Options :

1. ✖ 6.19 cm

2. ✖ 6.20 cm

3. ✔ 8.09 cm

4. ✖ 9.09 cm

Question Number : 120 Question Id : 630680383772 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

A semi-circular sheet of a metal of diameter 20 cm is bent into an open conical cup. What are the depth and capacity of the cup?

Options :

1. ✖ $\text{Depth} = 3\sqrt{5}\text{ cm}, \text{Capacity} = \frac{2750}{21}\sqrt{5}\text{ cm}^3$

2. ✔ $\text{Depth} = 5\sqrt{3}\text{ cm}, \text{Capacity} = \frac{2750}{21}\sqrt{3}\text{ cm}^3$

3. ✖ $\text{Depth} = \sqrt{3}\text{ cm}, \text{Capacity} = \frac{2750}{21}\sqrt{3}\text{ cm}^3$

4. ✖ $\text{Depth} = \sqrt{5}\text{ cm}, \text{Capacity} = \frac{2750}{21}\sqrt{5}\text{ cm}^3$

Question Number : 121 Question Id : 630680383773 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

In a fair, a man in one of the food stalls has a large cylindrical vessel of the base radius 12 cm filled up to a height 28 cm with mango juice. The juice is filled in small cylindrical glasses of radius 4 cm up to a height of 7 cm and sold for ₹4 each. How much money does the man receive by selling the juice completely?

Options :

1. ✔ ₹144

2. ✖ ₹100

3. ✖ ₹96

4. ✖ ₹76

Question Number : 122 Question Id : 630680383774 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Rain water which falls on a flat rectangular surface of length 9 m and breadth 7 m is transferred into a cylindrical vessel of internal radius 7 cm. The height of water in the cylindrical vessel if the rain fall is 1 cm is:

Options :

1. ✖ 4.91 m

2. ✖ 4.901 m

3. ✖ 4.91 m

4. ✔ 4.091 m

Question Number : 123 Question Id : 630680383775 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

A rubber soccer ball of outside diameter is 22 cm. The thickness of the rubber is 0.5 cm. What is the volume of the rubber to the nearest cm^3?

Options :

1. ✖ $520\ cm^3$

2. ✖ $586\ cm^3$

3. ✖ $612\ cm^3$

4. ✔ $726\ cm^3$

Question Number : 124 Question Id : 630680383776 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

What is the mean of following data?

10, 8, 5, 10, 7, 8, 8, 9, 4, 9

Options :

1. ✖ 7.5

2. ✔ 7.8

3. ✖ 6.9

4. ✖ 8.1

Question Number : 125 Question Id : 630680383777 Is Question Mandatory : No Calculator :

None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The marks scored by students in a maths test are 17, 12, 7, 2, 15, 8, 14, 18, 11, 14, 18, 10, 4, 7, 8 and 5. Find the median of this data.

Options :

1. ✔ 10.5

2. ✖ 10

3. ✖ 11

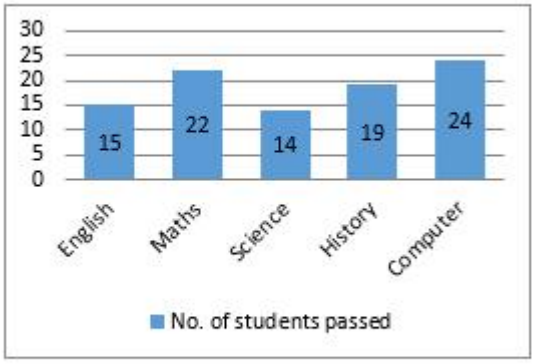
4. ✖ 11.5

Question Number : 126 Question Id : 630680383778 Is Question Mandatory : No Calculator :

None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Refer to the given graph and answer the question that follows.



How many students passed in Maths, Science and Computer?

Options :

1. ✖ 57

2. ✖ 46

3. ✖ 55

4. ✔ 60

Question Number : 127 Question Id : 630680383779 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

If the mean of 1780, 1760, 1840, 1810, 1690, 1050, x, 1750, 1920 and 1950 is 1665, then what is the value of x?

Options :

1. ✔ 1100

2. ✖ 15,550

3. ✖ 1555

4. ✖ 16,650

Question Number : 128 Question Id : 630680383780 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Select the option that is true regarding the following two statements labelled Assertion (A) and Reason (R).

Assertion (A): The arithmetic mean of following data is 2.16.

x_i	0	1	2	3
f_i	10	25	32	45

Reason (R): Mean $= \bar{x} = \frac{\sum_{i=1}^{n} f_i x_i}{\sum_{i=1}^{n} f_i}$

Options :

1. ✖ Both A and R are true, and R is the correct explanation of A.

2. ✖ Both A and R are true, but R is not the correct explanation of A.

3. ✖ A is true, but R is false.

4. ✔ A is false, but R is true.

Question Number : 129 Question Id : 630680383781 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

If the Mean and Mode of a data are 15 and 12, respectively, then the median of the data is:

Options :

1. ✔ 14

2. ✖ 13.5

3. ✖ 13

4. ✖ 16

Question Number : 130 Question Id : 630680383782 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The mean of 55 items is 32, but three observations 43, 25 and 62 were wrongly taken instead of 34, 52 and 26. The correct mean is:

Options :

1. ✖ 32.74

2. ✔ 31.67

3. ✖ 33.21

4. ✖ 32.43

Question Number : 131 Question Id : 630680383783 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The upper limit of the median class for the following frequency distribution is:

Class	0-5	5-10	10-15	15-20	20-25
Freq.	26	20	16	30	22

Options :

1. ✖ 5

2. ✖ 10

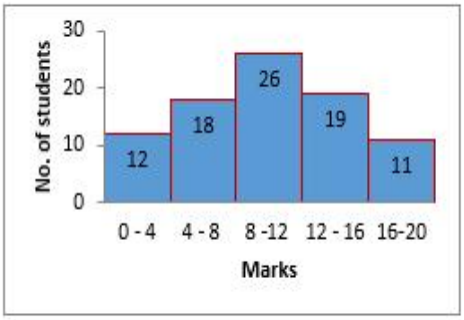
3. ✔ 15

4. ✖ 20

Question Number : 132 Question Id : 630680383784 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The following histogram shows certain frequency distribution against class intervals.



The approximate mean of this distribution is:

Options :

1. ✔ 9.95

2. ✖ 8.56

3. ✖ 43

4. ✖ 26

Question Number : 133 Question Id : 630680383785 Is Question Mandatory : No Calculator :

None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Consider the frequency distribution.

x_i	0	1	2	3	4
f_i	3	12	7	10	8

Match the pair given in column A with the correct value in column B.

Column A	Column B
A) Median	1) 2.2
B) Mean	2) 2
C) Mode	3) 1

Options :

1. ✖ A – 1, B – 2, C – 3

2. ✖ A – 2, B – 3, C – 1

3. ✔ A – 2, B – 1, C – 3

4. ✖ A – 3, B – 1, C – 2

Question Number : 134 Question Id : 630680383786 Is Question Mandatory : No Calculator :

None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Select the option that is true regarding the following two statements labelled Assertion (A) and Reason (R).

Assertion (A): To draw a histogram for the following frequency distribution table.

Class	0-5	5-10	10-20	20-35
f_i	10	12	6	15

The adjusted frequency of the class 10-20 is 3.

Reason (R): Adjusted frequency = (Frequency of the class interval × Minimum class width)/Class width of the required class.

Options :

1. ✔ Both A and R are true, and R is the correct explanation of A.

2. ✖ Both A and R are true, but R is not the correct explanation of A.

3. ✖ A is true, but R is false.

4. ✖ A is false, but R is true.

Question Number : 135 Question Id : 630680383787 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

For the following frequency distribution, the mean is:

Class	5-9	9-13	13-17	17-21
f_i	5	3	10	2

Options :

1. ✖ 12

2. ✔ 12.8

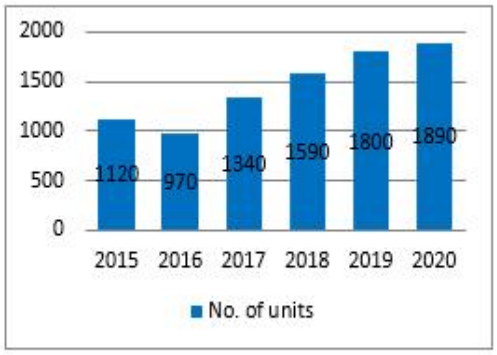
3. ✖ 13

4. ✖ 13.2

Question Number : 136 Question Id : 630680383788 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The given graph shows the annual sale car units of an automobile company.



Which year has the highest percentage increase in sale? What is the average sale?

Note: For this question, discrepancy is found in question/answer. So,this question is ignored for all candidates.

Options :

1. 2017; 1552

2. 2018; 1552

3. 2018; 1449

4. 2017; 1449

Question Number : 137 Question Id : 630680383789 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The mode of the following frequency distribution is 14.

Class	4-8	8-12	12-16	16-20
f_i	6	x	14	8

Find the value of x .

Options :

1. ✖ 9

2. ✖ 10

3. ✖ 12

4. ✔ 8

Question Number : 138 Question Id : 630680383790 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

For the following frequency distribution, the median is:

Class	0-5	5-10	10-15	15-20
f_i	5	7	12	6

Note: For this question, discrepancy is found in question/answer. So,this question is ignored for all candidates.

Options :

1. 15

2. 12.76

3. 10.625

4. 12.5

Question Number : 139 Question Id : 630680383791 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The value of $\cos 0° . \cos 3° \cos 6° . \cos 9° \ldots \cos 90°$ is:

Options :

1. ✖ 1

2. ✔ 0

3. ✖ $\frac{1}{\sqrt{2}}$

4. ✖ $-\frac{1}{\sqrt{2}}$

Question Number : 140 Question Id : 630680383792 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

If $\sin\alpha = 3/5$ then $\cos\alpha$ is equal to:

Options :

1. ✖ $\frac{5}{3}$

2. ✖ $\frac{3}{4}$

3. ✖ $\frac{3}{5}$

4. ✔ $\frac{4}{5}$

Question Number : 141 Question Id : 630680383793 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

In a right-angled triangle PQR, if $\angle Q = 90°$, QR = 12 and PR = 13, then $\cos P = ?$

Options :

1. ✖ $\frac{12}{13}$

2. ✖ $\frac{5}{12}$

3. ✔ $\frac{5}{13}$

4. ✖ $\sqrt{\frac{5}{12}}$

Question Number : 142 Question Id : 630680383794 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

$\cos 30°.\, cosec\ 60° + \sec 30°.\sin 60° = ?$

Options :

1. ✔ 2

2. ✖ 1

3. ✖ 0

4. ✖ $\sqrt{3}$

Question Number : 143 Question Id : 630680383795 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

If $\cos\left(\frac{2A}{3}\right) = \sin(A - 40°)$, where $\frac{2A}{3}$ is an acute angle, then the value of A is:

Options :

1. ✖ $30°$

2. ✔ $78°$

3. ✖ $60°$

4. ✖ $12°$

Question Number : 144 Question Id : 630680383796 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

If $\cos\alpha = \frac{2}{3}$, then match column A with the correct value in column B.

Column A	Column B
A) $\tan\alpha$	1) $\frac{2}{\sqrt{5}}$
B) $\text{cosec}\,\alpha$	2) $\frac{\sqrt{5}}{2}$
C) $\cot\alpha$	3) $\frac{3}{\sqrt{5}}$

Options :

1. ✖ A – 1, B – 2, C – 3

2. ✔ A – 2, B – 3, C – 1

3. ✖ A – 2, B – 1, C – 3

4. ✖ A – 3, B – 1, C – 2

Question Number : 145 Question Id : 630680383797 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The value of the expression

$\{\sin(55° + \theta) - \cos(35° - \theta) + \sec(72° + \theta) - cosec\,(18° - \theta)\}$ is:

Options :

1. ✖ 1

2. ✖ 2

3. ✔ 0

4. ✖ ½

Question Number : 146 Question Id : 630680383798 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

If $\cos 30°.\cot 60° = x(\sec^2 30° - \sin^2 45°)$, then the value of x is:

Options :

1. ✔ $\frac{3}{5}$

2. ✖

$\frac{6}{5}$

3. ✖ 1

4. ✖ $-\frac{6}{5}$

Question Number : 147 Question Id : 630680383799 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

$\frac{\sin x + \tan x}{\sin x - \tan x} = ?$

Options :

1. ✖ $\frac{1 - \sec x}{1 + \sec x}$

2. ✔ $\frac{1 + \sec x}{1 - \sec x}$

3. ✖ $\frac{1 + co\sec x}{1 - \text{cosec}\, x}$

4. ✖ $\frac{1 - co\sec x}{1 + \text{cosec}\, x}$

Question Number : 148 Question Id : 630680383800 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

If $\cot(A - B) = \sqrt{3}$ and $cosec\,(A + B) = \frac{2}{\sqrt{3}}, 0 < A + B < 90°$ and $A > B$, then find the values of A and B.

Options :

1. ✖ $A = 55°$ and $B = 25°$

2. ✖ $A = 60°$ and $B = 30°$

3. ✖ $A = 35°$ and $B = 25°$

4. ✔ $A = 45°$ and $B = 15°$

Question Number : 149 Question Id : 630680383801 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

What is the value of the following expression?

$$\left\{\frac{\sec^2 63° + \sec^2 27°}{\operatorname{cosec}^2 63° + \operatorname{cosec}^2 27°} + \frac{1}{2}(\sec^2 25° - \tan 25°.\cot 65°)\right\}$$

Options :

1. ✔ $\frac{3}{2}$

2. ✖ 0

3. ✖ 1

4. ✖ $\frac{1}{2}$

Question Number : 150 Question Id : 630680383802 Is Question Mandatory : No Calculator :

None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Select the option that is true regarding the following two statements labelled Assertion (A) and Reason (R).

Assertion (A): In a ΔABC, right angled at B, if $\sin A = \frac{6}{10}$, then $\sec A = \frac{5}{4}$ and $\cot A = \frac{4}{3}$.

Reason (R): For acute angle θ, $\sec\theta = \frac{Hypotenuse}{Base}$ and $\cot\theta = \frac{Base}{Perpendicular}$.

Options :

1. ✔ Both A and R are true, and R is the correct explanation of A.

2. ✖ Both A and R are true, but R is not the correct explanation of A.

3. ✖ A is true, but R is false.

4. ✖ A is false, but R is true.