



MATHS

BOOKS - SUPER COMPANION MADE EASY

S.S.L.C ANNUAL EXAMINATION QUESTION PAPER MARCH- 2019 (**WITH ANSWERS)**

I Answer The Following

1. If the n -th term of an arithmetic progression

$a_n = 24 - 3n$, then its 2nd term is

A. 18

B. 15

C. 0

D. 2

Answer: A



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2. The lines represented by $2x+3y-9=0$ and $4x+6y-18=0$ are

A. Intersecting lines

B. perpendicular lines to each other

C. Parallel lines

D. Coincident lines

Answer: C::D



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3. A straight line which passes through two points on a circle is

A. a chord

B. a secant

C. a tangent

D. the radius

Answer: A::C



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4. If the area of a circle is 49π sq. Units then its perimeter is

A. 7π units

B. 9π units

C. 49π units

D. 14π units

Answer: A::D



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5. " The product of two consecutive positive integers is 30. "

This can be expressed algebraically as

A. $x(x+2) = 30$

B. $x(x-2) = 30$

C. $x(x-3) = 30$

D. $x(x+1) = 30$

Answer: A::C



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6. If a and b are any two positive integers then

$\text{HCF}(a,b) \times \text{LCM}(a,b)$ is equal to

A. $a+b$

B. $a-b$

C. $a \times b$

D. a/b

Answer: C



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7. The value of $\cos 49^\circ - \sin 41^\circ$ is

A. 0

B. $\frac{1}{4}$

C. $\frac{1}{2}$

D. 1

Answer:



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8. If $P(E) = 0.05$, what is the probability of 'not' E ?

A. 0.59

B. 0.95

C. 1

D. 1.05

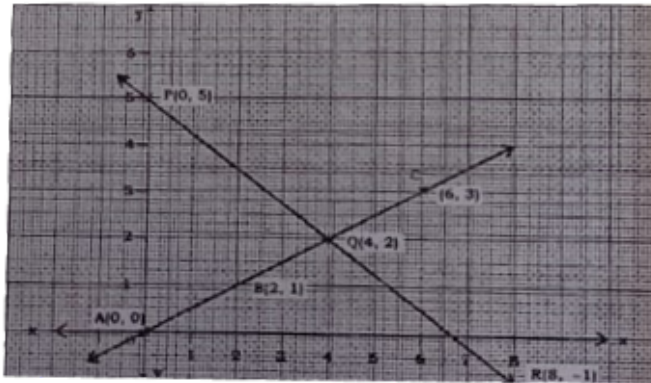
Answer:



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ii Answer The Following

1. The given graph represents a pair of linear equations in two variables . Write how many solutions these pair of equations have .



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2. $17 = 6 \times 2 + 5$ is compared with Euclid's Division lemma $a = bq + r$ then which number is representing the remainder



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3. Find the zeroes of the polynomial $P(x) = x^2 - 3$



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4. Write the degree of the polynomial $P(x) =$

$$2x^3 - x^2 + 5$$



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5. Find the value of the discriminant of the

quadratic equation $2x^2 - 4x + 3 = 0$



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6. Write the formula to calculate the curved surface area of the frustum of a cone .



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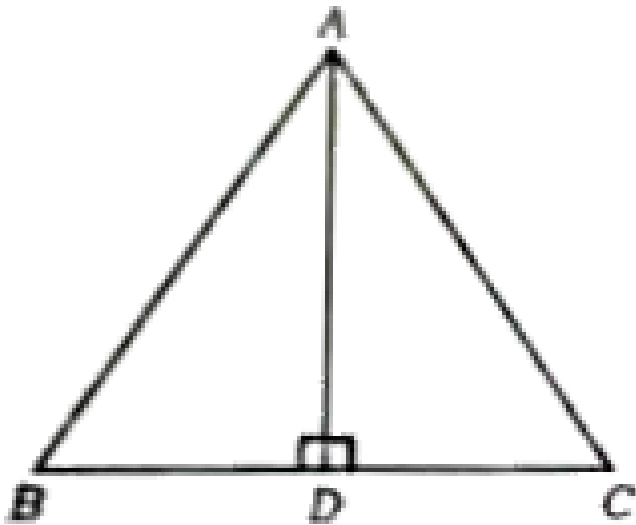
7. Find the sum of first twenty terms of Arithmetic series $2 + 7 + 12 + \dots$ using suitable formula.



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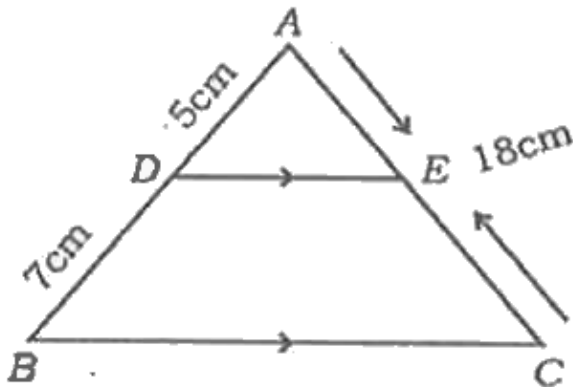
8. In $\triangle ABC$, $AD \perp BC$ and $AD^2 = BD \times CD$

. Prove that $AB^2 + AC^2 = (BD + CD)^2$



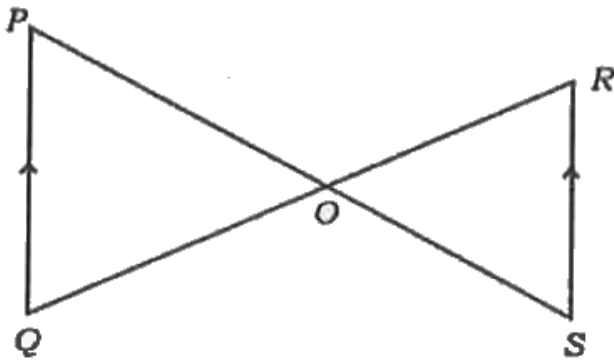
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9. In $\triangle ABC$, $DE \parallel BC$. If $AD = 5$ cm, $BD = 7$ cm and $AC = 18$ cm, find the length of AE .



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10. In the given figure $PQ \parallel RS$, prove that $\triangle POQ \sim \triangle SOR$.



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11. Solve the following pair of linear equations by any suitable method.

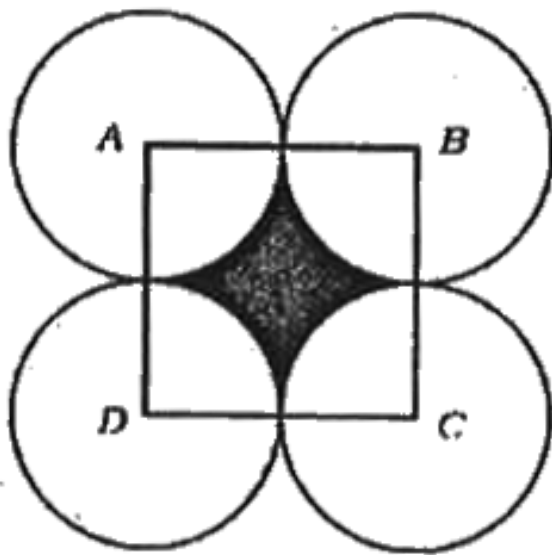
$$x+y = 5$$

$$2x-3y=5$$



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12. In the figure , ABCD is a square of side 14 cm. A, B, C and D are the centres of four congruent circle such that each circle touches externally two of the remaining three circles . Find the area of the shaded region.



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13. Draw a circle of radius 4 cm and construct a pair of tangents such that the angle between them is 60° .



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14. Find the co - ordinates of points which divides the line segment joining the points A (4, - 3) and B (8,5) in the ratio 3: 1 internally

.



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15. Prove that $3 + 2\sqrt{5}$ is an irrational number

.



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16. The sum and product of the zeroes of a quadratic polynomial $P(x) = ax^2 + bx + c$ are -3 and 2 respectively, Show that $b+c = 5a$.



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17. Find the quotient and the remainder when

$P(x) = 3x^3 + x^2 + 2x + 5$ is divided by $g(x) = x^2 + 2x + 1$.



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18. Solve $2x^2 - 5x + 3 = 0$ by using formula.



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19. The length of a rectangular field is 3 times its breadth. If the area of the field is 147 sq.m,

find its length and breadth.



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20. If $\sin \theta = \frac{12}{13}$ find the values of $\cos \theta$ and $\tan \theta$. (2)



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21. If $\sqrt{3}\tan\theta = 1$ and θ is acute find the value of $\sin 3\theta\cos 2\theta$.



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22.

Prove

that

$$\left(\frac{1 + \cos \theta}{1 - \cos \theta} \right) = (\operatorname{cosec} \theta + \cot \theta)^2$$



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23. A cubical die numbered from 1 to 6 are rolled twice . Find the probability of getting the sum of numbers on its faces is 10 .



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24. The radii of two circular ends of a frustum of a cone shaped dustbin are 15 cm and 18 cm . If its depth is 63 cm find the volume of the dustbin



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25. Prove that the "Length of tangents drawn from an external point a circle are equal".



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26. Prove that "the lengths of tangents drawn from an external point to a circle are equal".

OR

In the given figure PQ and RS are two parallel tangents to a circle with centre O and another tangent AB with point of contact C intersecting PQ at A and RS at B. Prove that

$$\angle AOB = 90^\circ.$$



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27. Calculate the median of the following frequency distribution table :

<i>Class – interval</i>	<i>Frequency (f_i)</i>
1 – 4	6
4 – 7	30
7 – 10	40
10 – 13	16
13 – 16	4
16 – 19	4



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28. Calculate the mode for the following frequency distribution table

<i>Class – interval</i>	<i>Frequency (f_i)</i>
10 – 25	2
25 – 40	3
40 – 55	7
55 – 70	6
70 – 85	6
85 – 100	6



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29. During the medical check-up of 35 students of a class, their weights were recorded as follows:

Daily income (in ₹)	Cumulation frequency
Less than 38	0
Less than 40	3
Less than 42	5
Less than 44	9
Less than 46	14
Less than 48	28
Less than 50	32
Less than 52	35

Draw a less than type ogive for the given data.

Hence obtain the median weight from the graph and varify the result by using the formula.



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30. The seventh term of an arithmetic progression is four times its second term and twelfth term is 2 more than three times of its fourth term. Find the progression.



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31. A line segment is divided into four parts forming an arithmetic progression. The sum of the lengths of 3rd and 4th parts is three times the sum of the lengths of first two parts.

If the length of fourth part is 14 cm, find the total length of the line segment.



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32. The vertices of a $\triangle ABC$ are $A (-3,2)$, $B (-1,-4)$ and $C (5,2)$. If M and N are the mid - points of AB and AC respectively show that $2 MN = BC$.



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33. The vertices of a $\triangle ABC$ are A (-5,-1), B (3,-5) , C (5,2). Show that the area of the $\triangle ABC$ is four times the area of the triangle formed by joining the mid-points of the sides of the triangle ABC.



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34. Construct a triangle with sides 5 cm, 6 cm and 7 cm and then another triangle whose

sides are $\frac{7}{5}$ of the corresponding sides of the first triangle.



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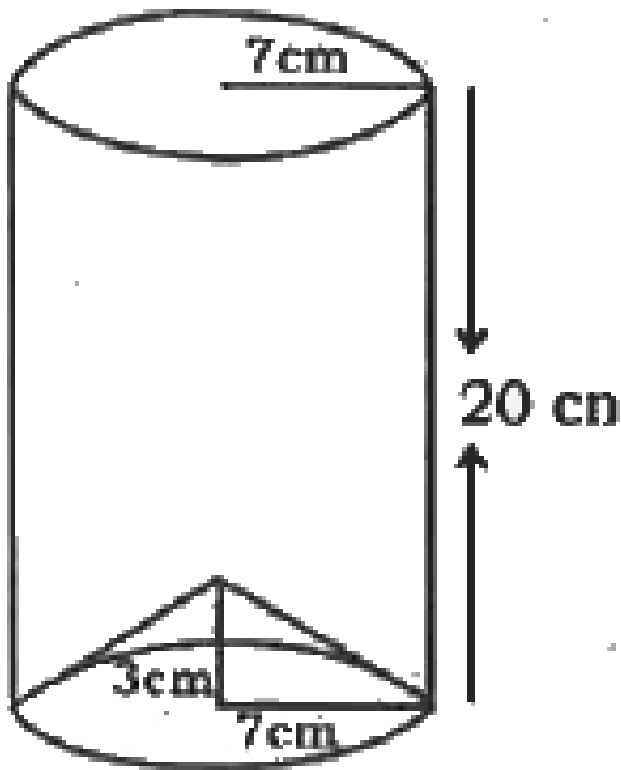
35. If the angles of elevation of the top of a tower from two points at a distance of 4m and 9m from the base of the tower and in the same straight line with it are complementary, find the height of the tower.



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36. The bottom of a right cylindrical shaped vessel made from metallic sheet is closed by a cone shaped vessel as shown in the figure . The radius of the circular base of the cylinder and radius of the circular base of the cone each os equal to 7 cm . If the height of the cylinder is 20 cm and height of cone is 3 cm calculate the cost of milk to fill completely this

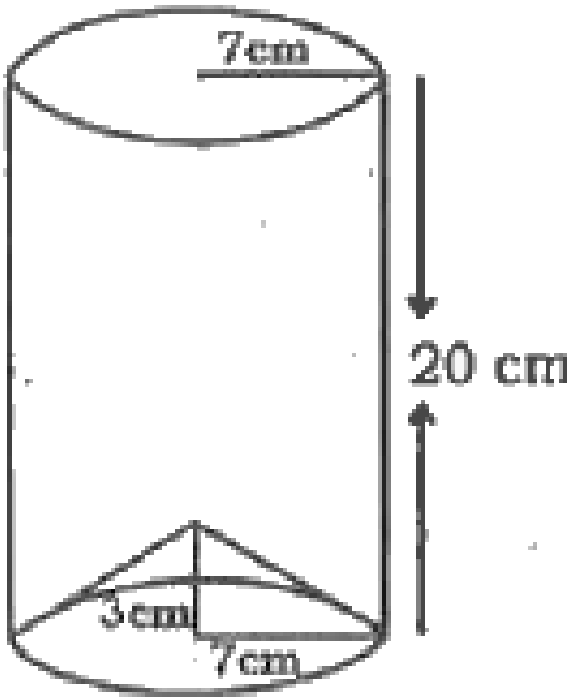
vessel at the rate of Rs. 20 per litre.



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37. A hemispherical vessel of radius 14 cm is fully filled with sand . This sand is poured on a level ground. The heap of sand forms a cone shape of height 7 cm . Calculate the area of ground occupied by the circular base of the

heap of the sand.



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38. Prove that the ratio of the areas of two similar triangles is equal to the square of the ratio of their corresponding medians.



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