

**SSLC MATHS  
SLOW LEARNERS  
DAILY PRACTICE PROBLEM**

- ❖ **ONE MARKS**
- ❖ **GEOMETRY**
- ❖ **GRAPH**

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**DAY 1****I. ANSWER ALL THE QUESTIONS****14 X 1 = 14**

- If  $A = \{a, b, p\}$ ,  $B = \{2, 3\}$  and  $C = \{p, q, r, s\}$  then  $n[(A \cup B) \cap C]$  is  
a) 8                      b) 20                      c) 12                      d) 16
- If  $f(x) = (x+1)^3 - (x-1)^3$  represent a function which is  
a) Linear                      b) cubic                      c) reciprocal                      d) quadratic
- The least number that is divisible by all the numbers from 1 to 10 (both inclusive) is  
a) 2025                      b) 5220                      c) 5025                      d) 2520
- In an A.P., the first term is 1 and the common difference is 4. How many terms of the A.P. must be taken for their sum to be equal to 120?  
a) 6                      b) 7                      c) 8                      d) 9
- The number of the point of intersection of the quadratic polynomial  $x^2 + 4x + 4$  with the X-axis is  
a) 0                      b) 1                      c) 0 (or) 1                      d) 2
- For the given matrix  $A = \begin{pmatrix} 1 & 3 & 5 & 7 \\ 2 & 4 & 6 & 8 \\ 9 & 11 & 13 & 15 \end{pmatrix}$  the order of the matrix  $A^T$  is  
a)  $2 \times 3$                       b)  $3 \times 2$                       c)  $3 \times 4$                       d)  $4 \times 3$
- If  $\Delta ABC$  is an isosceles triangle with  $\angle C = 90^\circ$  and  $AC = 5\text{cm}$  then  $AB$  is  
a) 2.5cm                      b) 5cm                      c) 10cm                      d)  $5\sqrt{2}\text{cm}$
- If a line with slope 'm'  $m \neq 0$  makes x-intercept d, then the equation of the straight line is  
a)  $y = mx + d$                       b)  $y = mx - d$                       c)  $y = m(x - d)$                       d)  $y = m(x + d)$
- The point of intersection of  $3x - y = 4$  and  $x + y = 8$  is  
a) (5,3)                      b) (2,4)                      c) (3,5)                      d) (4,4)
- If the ratio of the height of a tower and length of its shadow is  $\sqrt{3} : 1$ , then the angle of elevation of the sun has measure  
a)  $45^\circ$                       b)  $30^\circ$                       c)  $90^\circ$                       d)  $60^\circ$ .
- If the radius of the base of a cone is tripled and the height is doubled then the volume is  
a) Made 6 times                      b) made 18 times                      c) made 12 times                      d) unchanged
- A spherical ball of radius  $r_1$  units is melted to make 8 new identical balls each of radius  $r_2$  units. Then  $r_1 : r_2$  is  
a) 2:1                      b) 1:2                      c) 4:1                      d) 1:4
- The sum of all deviations of the data from its mean is  
a) Always positive                      b) always negative                      c) zero                      d) non-zero integer
- A page is selected at random from a book. The probability that the digit at units place of the page number chosen is less than 7 is  
a)  $3/10$                       b)  $7/10$                       c)  $3/9$                       d)  $7/9$

**II. ANSWER ALL THE QUESTIONS.****2 X 8 = 16**

- Construct a triangle similar to a given triangle PQR with its sides equal to  $\frac{7}{4}$  of the corresponding sides of the triangle PQR (scale factor  $\frac{7}{4} > 1$ ). **(OR)**
- Construct a triangle PQR with  $PQ = 8\text{cm}$ ,  $\angle R = 60^\circ$  and the median RG from R to PQ is 5.8cm. Find the length of altitude from R to PQ.
- A garment shop announces a flat 50% discount on every purchase of items for their customers. Draw the graph for the relation between the Marked Price and the Discount. Hence find  
(i) the marked price when a customer gets a discount of ₹3250 (from graph)  
(ii) the discount when the marked price is ₹2500. **(OR)**
- Discuss the nature of solutions of the following quadratic equations.  
 $x^2 - 8x + 16 = 0$ .

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**DAY-2****I. ANSWER ALL THE QUESTIONS:****14 X 1 = 14**

- If  $n(A \times B) = 6$  and  $A = \{1, 3\}$  then  $n(B)$  is  
a) 1                      b) 2                      c) 3                      d) 6
- If  $g = \{(1, 1), (2, 3), (3, 5), (4, 7)\}$  is a function given by  $g(x) = \alpha x + \beta$  then the values of  $\alpha$  and  $\beta$  are  
a) (-1, 2)                b) (2, -1)                c) (-1, -2)                d) (1, 2)
- If 3,  $x$ , 6.75 are in G.P. then  $x$  is \_\_\_\_\_  
a) 4                      b) 4.5                      c) 4.25                      d) 5
- The value of  $(1^3 + 2^3 + 3^3 + \dots + 15^3) - (1 + 2 + 3 + \dots + 15)$  is  
a) 14400                b) 14200                c) 14280                d) 14520
- If  $(x-6)$  is a HCF of  $x^2 - 2x - 24$  and  $x^2 - kx - 6$  then the value of 'k' is  
a) 3                      b) 5                      c) 6                      d) 8
- If number of columns and rows are not equal in a matrix then it is said to be a  
a) Diagonal matrix    b) rectangular matrix    c) square matrix    d) identity matrix
- No tangent can be drawn from \_\_\_\_\_ of the circle.  
a) Exterior point    b) interior point    c) point on    d) none of these
- In a triangle ABC, AD is the bisector of  $\angle BAC$ . If  $AB = 8\text{cm}$ ,  $BD = 6\text{cm}$  and  $DC = 3\text{cm}$ . The length of the side AC is  
a) 6 cm                b) 4cm                c) 3 cm                d) 8 cm
- The equation of a line passing through the origin and perpendicular to the line  $7x - 3y + 4 = 0$  is  
a)  $7x - 3y + 4 = 0$     b)  $3x - 7y + 4 = 0$     c)  $3x + 7y = 0$     d)  $7x - 3y = 0$
- The value of  $\sin^2\theta + \frac{1}{1 + \tan^2\theta}$  is equal to  
a)  $\tan^2\theta$                 b) 1                      c)  $\cot^2\theta$                 d) 0
- The curved surface area of a right circular cone of height 15cm and base diameter 16cm is  
a)  $60\pi\text{cm}^2$     b)  $68\pi\text{cm}^2$     c)  $120\pi\text{cm}^2$     d)  $136\pi\text{cm}^2$ .
- The total surface area of a hemi-sphere is how much times the square of its radius.  
a)  $\pi$                       b)  $4\pi$                       c)  $3\pi$                       d)  $2\pi$
- The range of the data 8, 8, 8, ..., 8 is  
a) 0                      b) 1                      c) 8                      d) 3
- Which of the following is incorrect?  
a)  $P(A) > 1$                 b)  $0 \leq P(A) \leq 1$                 c)  $P(\emptyset) = 0$                 d)  $P(A) + P(\bar{A}) = 1$

**II. ANSWER ALL THE QUESTIONS:****2 X 8 = 16**

- a) Construct a triangle similar to a given  $\Delta PQR$  with its sides equal to  $2/3$  of the corresponding sides of the  $\Delta PQR$  (scale factor  $2/3 < 1$ ). (OR)  
b) Draw a circle of diameter 6cm from a point P, which is 8cm away from its centre. Draw two tangents PA and PB to the circle and measure their lengths.
- a) Draw the graph of  $y = x^2 + x$  and hence solve  $x^2 + 1 = 0$ . (OR)  
b) A school announces that for a certain competitions, the cash prize will be distributed for all the participants equally as show below.

No. of participants (x)	2	4	6	8	10
Amount for each participants (y)	180	90	60	45	36

- Find the constant of variation.
- Graph of the above data and hence, find how much will each participant get if the number of participants are 12.

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**DAY-3****I. ANSWER ALL THE QUESTIONS:****14 X 1 = 14**

- If  $\{(a,8),(6,b)\}$  represents an identity function, then the value of a and b are  
a) (8,6)      b) (8,8)      c) (6,8)      d) (6,6)
- Let  $f(x) = \sqrt{1+x^2}$  then  
a)  $f(xy)=f(x).f(y)$       b)  $f(xy)\geq f(x).f(y)$       c)  $f(xy)\leq f(x).f(y)$       d) none of these
- The least positive value of 'k' such that  $(k-3)\equiv 5 \pmod{11}$  is  
a) 3      b) 8      c) 14      d) 19
- An A.P consists of 31 terms. If 16<sup>th</sup> term is 'm', then the sum of all the terms of this A.P is  
a) 16m      b) 62m      c) 31m      d) 31m/2
- The solution of the system  $x+y-3z=-6$ ,  $-7y+7z=7$ ,  $3z=9$  is  
a)  $x=1,y=2,z=3$       b)  $x=-1,y=2,z=3$       c)  $x=-1,y=-2,z=-3$       d)  $x=1,y=-2,z=3$
- Find the matrix X if  $2x + \begin{pmatrix} 1 & 3 \\ 5 & 7 \end{pmatrix} = \begin{pmatrix} 5 & 7 \\ 9 & 5 \end{pmatrix}$   
a)  $\begin{pmatrix} -2 & -2 \\ 2 & -1 \end{pmatrix}$       b)  $\begin{pmatrix} 2 & 2 \\ 2 & -1 \end{pmatrix}$       c)  $\begin{pmatrix} 1 & 2 \\ 2 & 2 \end{pmatrix}$       d)  $\begin{pmatrix} 2 & 1 \\ 2 & 2 \end{pmatrix}$
- If in a  $\Delta ABC$ ,  $DE\parallel BC$ .  $AB=3.6\text{cm}$ ,  $AC=2.4\text{cm}$  and  $AD=2.1\text{cm}$  then length of AE is  
a) 1.4cm      b) 1.8cm      c) 1.2 cm      d) 1.05cm
- A tangent is perpendicular to the radius at the  
a) Centre      b) point of contact      c) infinity      d) chord
- A man walks near a wall, such that the distance between him and the wall is 10 units. Consider the wall to be the Y-axis. The path travelled by the man is  
a)  $x=10$       b)  $y=10$       c)  $x=0$       d)  $y=0$
- The slope of the line joining (12,3), (4,a) is  $(1/8)$ . The value of 'a' is  
a) 1      b) 4      c) -5      d) 2
- $(1+\tan\theta+\sec\theta)(1+\cot\theta-\operatorname{cosec}\theta)$  is equal to  
a) 0      b) 1      c) 2      d) -1
- The total surface area of a cylinder whose radius is  $1/3$  of its height is  
a)  $\frac{9\pi h^2}{8}$  sq.units      b)  $24\pi h^2$  sq.unit      c)  $\frac{8\pi h^2}{9}$  sq. Units      d)  $\frac{56\pi h^2}{9}$  sq.units
- The volume of the greatest sphere that can be cut off from a cylindrical log of wood of base radius 1 cm and height 5cm is  
a)  $\frac{4}{3}\pi$       b)  $\frac{10}{3}\pi$       c)  $5\pi$       d)  $\frac{20}{3}\pi$ .
- Variance of first 20 natural numbers is  
a) 32.25      b) 44.25      c) 33.25      d) 30

**II. ANSWER ALL THE QUESTIONS:****2 X 8 = 16**

- a) Construct a triangle similar to a given  $\Delta LMN$  with its sides equal to  $4/5$  of the corresponding sides of the  $\Delta LMN$  (scale factor  $4/5 < 1$ ). (OR)  
b) Draw a circle of radius 4 cm. At a point L on it draw a tangent to the circle using the alternate theorem.
- a) Draw the graph of  $x^2-9x+20=0$  and state their nature of solution. (OR)  
c) Draw the graph of  $xy = 24$ ,  $x,y > 0$ . using the graph find, (i) y when  $x = 3$  and (ii) x when  $y = 6$ .

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**DAY-4****I. ANSWER ALL THE QUESTIONS:****14 X 1 = 14**

- If  $A=\{1,2\}$ ,  $B=\{1,2,3,4\}$ ,  $C=\{5,6\}$  and  $D=\{5,6,7,8\}$  then state which of the following statements is true.
  - $(AXC) \subset (BXD)$
  - $(BXD) \subset (AXC)$
  - $(AXB) \subset (AXD)$
  - $(DXA) \subset (BXA)$
- If  $f:A \rightarrow B$  is a constant function then the range of 'f' will have \_\_\_ elements.
  - Infinity
  - zero
  - one
  - two
- Using Euclid's division lemma, if the cube of any positive integer is divided by 9 then the possible remainders are
  - 0,1,8
  - 1,4,8
  - 0,1,3
  - 1,3,5
- If the sequence  $t_1, t_2, t_3, \dots$  are in A.P then the sequence  $t_6, t_{12}, t_{18}, \dots$  is
  - a G.P
  - an A.P
  - neither an A.P nor G.P
  - a constant sequence
- If three planes are parallel then the number of possible point(s) of intersection is/are
  - 0
  - 1
  - 3
  - infinity
- If A is a  $2 \times 3$  matrix and B is a  $3 \times 4$  matrix, how many columns does AB have
  - 3
  - 4
  - 2
  - 5
- In a triangle PQR,  $ST \parallel QR$ ,  $PS=2\text{cm}$  and  $SQ=3\text{cm}$ . Then the ratio of the area of  $\Delta PQR$  to the area of  $\Delta PST$  is
  - 25:4
  - 25:7
  - 25:11
  - 25:13
- The two tangents from an external points P to a circle with centre O are PA and PB. If  $\angle APB=70^\circ$  then the value of  $\angle AOB$  is
  - $100^\circ$
  - $110^\circ$
  - $120^\circ$
  - $130^\circ$
- The area of the triangle formed by the points  $(-5,0)$ ,  $(0,-5)$  and  $(5,0)$  is
  - 0 sq.units
  - 25 sq.units
  - 5 sq.units
  - none of these
- When proving that a quadrilateral is a trapezium, it is necessary to show
  - Two sides are parallel
  - Two parallel and two non-parallel sides
  - opposite sides are parallel
  - all sides are of equal length
- $\tan\theta \operatorname{cosec}^2\theta - \tan\theta$  is equal to
  - $\sec\theta$
  - $\cot^2\theta$
  - $\sin\theta$
  - $\cot\theta$
- A solid sphere of radius 'x' cm is melted and cast into a shape of a solid cone of same radius. The height of the cone is
  - 3x cm
  - x cm
  - 4x cm
  - 2x cm
- The mean of 100 observations is 40 and their standard deviation is 3. The sum of squares of all deviations is
  - 40000
  - 160900
  - 160000
  - 30000
- If a letter is chosen at random from the English alphabets  $\{a,b,c,\dots,z\}$ , then the probability that the letter chosen precedes x
  - 12/13
  - 1/13
  - 23/26
  - 3/26

**II. ANSWER ALL THE QUESTIONS:****2 X 8 = 16**

- Construct a triangle PQR such that  $QR=5\text{cm}$ ,  $\angle P=30^\circ$  and the altitude from P to QR is of length 4.2cm. (OR)
  - Take a point which is 11 cm away from the centre of a circle of radius 4cm and draw the two tangents to the circle from the point.
- A company initially started with 40 workers to complete the work by 150 days. Later it decided to fasten up the work increasing the number of workers as shown below.
    - Graph the above data and identify the type of variation.
    - From the graph, find the number of days required to complete the work if the company decides to opt for 120 workers?
    - If the work has to be completed by 30days, how many workers are need? (OR)
  - Draw the graph of  $y=2x^2-3x-5$  and hence solve  $2x^2-4x-6=0$ .

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**DAY-5****I. ANSWER ALL THE QUESTIONS:****14 X 1 = 14**

- If there are 1024 relations from a set  $A=\{1,2,3,4,5\}$  to a set B, then the number of elements in B is  
a) 3                      b) 2                      c) 4                      d) 8
- If  $f: A \rightarrow B$  is a bijective function and if  $n(B)=7$ , then  $n(A)$  is equal to  
a) 7                      b) 49                      c) 1                      d) 14
- The sum of the exponents of the prime factors in the prime factorization of 1729  
a) 1                      b) 2                      c) 3                      d) 4
- In an A.P, the first term is 1 and the common difference is 4. how many terms of the A.P must be taken for their sum to be equal to 120?  
a) 6                      b) 7                      c) 8                      d) 9
- The square root of  $\frac{256x^8y^4z^{10}}{25x^6y^6z^6}$  is equal to  
a)  $\frac{16}{5} \left| \frac{x^2z^4}{y^2} \right|$                       b)  $16 \left| \frac{y^2}{x^2z^4} \right|$                       c)  $\frac{16}{5} \left| \frac{y}{xz^2} \right|$                       d)  $\frac{16}{5} \left| \frac{xz^2}{y} \right|$
- Transpose of a column matrix is  
a) Unit matrix                      b) diagonal matrix                      c) column matrix                      d) row matrix
- If in a triangle ABC and EDF,  $\frac{AB}{DE} = \frac{BC}{FD}$  then they will be similar, when  
a)  $\angle B = \angle E$                       b)  $\angle A = \angle D$                       c)  $\angle B = \angle D$                       d)  $\angle A = \angle F$
- Two poles of heights 6m and 11m stand vertically on a plane ground. If the distance between their feet is 12m, what is the distance between their tops?  
a) 13m                      b) 14m                      c) 15 m                      d) 12.8m
- How many triangles exist, whose area is zero?  
a) 0                      b) 1                      c) infinity                      d) 3
- The slope of the line which is perpendicular to a line joining the points (0,0) and (-8,8) is  
a) -1                      b) 1                      c) 1/3                      d) -8
- $a \cot \theta + b \operatorname{cosec} \theta = p$  and  $b \cot \theta + a \operatorname{cosec} \theta = q$  then  $p^2 - q^2$  is equal to  
a)  $a^2 - b^2$                       b)  $b^2 - a^2$                       c)  $a^2 + b^2$                       d)  $b - a$
- If the height is inversely proportional to the square of its radius, the volume of their cylinder is  
a) 1                      b)  $\pi r^2 h$                       c)  $2\pi$                       d)  $\pi$
- A shuttle cock used for playing badminton has the shape of the combination of  
a) a cylinder and a sphere                      c) a sphere and a cone  
b) a hemisphere and a cone                      d) frustum of a cone and a hemisphere
- If the standard deviation of x,y,z is p then the standard deviation of  $3x+5$ ,  $3y+5$ ,  $3z+5$  is  
a)  $3p+5$                       b)  $3p$                       c)  $p+5$                       d)  $9p+15$

**II. ANSWER ALL THE QUESTIONS:****2 X 8 = 16**

- a) Construct a triangle similar to a given triangle PQR with its sides equal to  $\frac{7}{3}$  of the corresponding sides of the triangle PQR (scale factor  $\frac{7}{3} > 1$ ) . (OR)  
b) Draw a circle of diameter 6 cm from a point P, which is 8cm away from its centre. Draw the two tangents PA and PB to the circle and measure their lengths.
- a) A bus is travelling at a uniform speed of 50km/hr. Draw the distance time graph and hence find  
(i) The constant of variation  
(ii) How far will it travel in  $1\frac{1}{2}$  hr.  
(iii) The time required to cover a distance of 300 km from the graph.  
(OR)  
b) Draw the graph of  $y=x^2+3x+2$  and use it to solve  $x^2+2x+1=0$ .

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**DAY-6****I. ANSWER ALL THE QUESTIONS:****14 X 1 = 14**

- If  $n(A)=p$ ,  $n(B)=q$ , then the total number of relations that exist from A to B is  
a)  $2^{pq-1}$       b)  $2^{pq}$       c)  $2^{pq+1}$       d) 1
- Let  $A=\{1,2,3,4\}$  and  $B=\{4,8,9,10\}$ . A function  $f:A \rightarrow B$  given by  $f=\{(1,4),(2,8),(3,9),(4,10)\}$  is a  
a) Many-one function      b) Identity function      c) one to one function      d) into function
- The HCF of the numbers of the form  $2^m$  and  $3^n$  is  
a)  $2^m$       b)  $3^n$       c)  $6^{m+n}$       d) 1
- The first term of an A.P is unity and the common difference is 4. Which of the following will be a term of this A.P.  
a) 4551      b) 10091      c) 7881      d) 13531
- A system of three linear equation in three variables is inconsistent if their planes  
a) Intersect only at a point      c) coincides with each other  
b) Intersect in a line      d) do not intersect
- If the roots of the equation  $q^2x^2+p^2x+r^2=0$  are the squares of the roots of the equation  $qx^2+px+r=0$ , then  $q,p,r$  are in \_\_\_\_\_  
a) A.P      b) G.P      c) Both A.P and G.P      d) none of these
- In  $\triangle LMN$ ,  $\angle L = 60^\circ$ ,  $\angle M = 50^\circ$ . If  $\triangle LMN \sim \triangle PQR$  then the value of  $\angle R$  is  
a)  $40^\circ$       b)  $70^\circ$       c)  $30^\circ$       d)  $110^\circ$ .
- The perimeters of two similar triangles  $\triangle ABC$  and  $\triangle PQR$  are 36 cm and 24 cm respectively. If  $PQ=10$ cm, then the length of AB is  
a)  $6\frac{2}{3}$ cm      b)  $\frac{10\sqrt{6}}{3}$  cm      c)  $66\frac{2}{3}$ cm      d) 15cm
- If (5,7), (3,p) and (6,6) are collinear, then the value of p is  
a) 3      b) 6      c) 9      d) 12
- (2, 1) is the point of intersection of two lines.  
a)  $x-y-3=0, 3x-y-7=0$       b)  $x+y=3, 3x+y=7$       c)  $3x+y=3, x+y=7$       d)  $x+3y-3=0, x-y-7=0$
- If  $(\sin\alpha + \operatorname{cosec}\alpha)^2 + (\cos\alpha + \sec\alpha)^2 = k + \tan^2\alpha + \cot^2\alpha$  then the value of k is  
a) 9      b) 7      c) 5      d) 3
- The angle of depression of the top and bottom of 20m tall building from the top of a multistoried building are  $30^\circ$  and  $60^\circ$  respectively. The height of the multistoried building and the distance between two buildings (in metres) is  
a)  $20, 10\sqrt{3}$       b)  $30, 5\sqrt{3}$       c) 20, 10      d)  $30, 10\sqrt{3}$
- The curved surface area of a right circular cone of height 15cm and base diameter 16cm is  
a)  $60\pi$ sq.cm      b)  $68\pi$ sq.cm      c)  $120\pi$ sq.cm      d)  $136\pi$ sq.cm
- If the mean and coefficient of variation of a data are 4 and 87.5% then the standard deviation is  
a) 3.5      b) 3      c) 4.5      d) 2.5

**II. ANSWER ALL THE QUESTIONS:****2 X 8 = 16**

- a) Construct a triangle similar to a given triangle ABC with its sides equal to  $\frac{6}{5}$  of the corresponding sides of the triangle ABC (scale factor  $\frac{6}{5} > 1$ )      **(OR)**  
b) Construct a triangle PQR such that  $QR=5$ cm,  $\angle P = 30^\circ$  and the altitude from P to QR is of length 4.2cm.
- a) Draw the graph of  $y = x^2+3x+2$  and use it to solve  $x^2+2x+1=0$ .      **(OR)**  
b) The following table shows the data about the number of pipes and the time taken to fill the same tank.

Number of pipes (x)	2	3	6	9
Time taken (in min) (y)	45	30	15	10

Draw the graph for the above data and hence (i) find the time taken to fill the tank when five pipes are used (ii) find the number of pipes when the time is 9 minutes.

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**DAY-7****ANSWER ALL THE QUESTIONS:****14 X 1 = 14**

- If  $f(x)=2x^2$  and  $g(x)=\frac{1}{3x}$  then  $f \circ g$  is  
 a)  $\frac{3}{2x^2}$                       b)  $\frac{2}{3x^2}$                       c)  $\frac{2}{9x^2}$                       d)  $\frac{1}{6x^2}$  .
- The range of the relation  $R=\{(x,x^2)/x \text{ is a prime number less than } 13\}$  is  
 a)  $\{23,5,7\}$                       b)  $\{2,3,5,7,11\}$                       c)  $\{4,9,25,49,121\}$                       d)  $\{1,4,9,25,49,121\}$
- Given  $F_1=1$ ,  $F_2=3$  and  $F_n=F_{n-1}+F_{n-2}$  then  $F_5$  is  
 a) 3                      b) 5                      c) 8                      d) 11
- Which of the following should be added to make  $x^4+64$  a perfect square  
 a)  $4x^2$                       b)  $16x^2$                       c)  $8x^2$                       d)  $-8x^2$ .
- The solution of  $(2x-1)^2=9$  is equal to  
 a) -1                      b) 2                      c) -1,2                      d) none of these
- A chord is a subsection of \_\_\_\_\_.  
 a) Tangent                      b) sectant                      c) straight line                      d) none of these
- In a triangle ABC  $\angle BAC = 90^\circ$  and  $AD \perp BC$  then  
 a)  $BD \cdot CD=BC^2$                       b)  $AB \cdot AC=BC^2$                       c)  $BD \cdot CD=AD^2$                       d)  $AB \cdot AC=AD^2$ .
- When proving that a quadrilateral is a parallelogram by using slopes you must find  
 a) the slopes of two sides                      b) the slopes of two pair of opposite sides  
 c) the lengths of all sides                      d) both the lengths and slopes of two sides
- A straight line has equation  $8y=4x+21$ . Which of the following is true?  
 a) The slope is 0.5 and the y intercept is 2.6  
 b) The slope is 5 and the y intercept is 1.6  
 c) The slope is 0.5 and the y intercept is 1.6  
 d) The slope is 5 and the y intercept is 2.6
- $(\tan 45^\circ + \cot 45^\circ) + (\sec 45^\circ \operatorname{cosec} 45^\circ) = ?$   
 a) 1                      b) 0                      c) 3                      d) 4
- When the height of the building and distances from the foot of the building is given which trigonometric ratio is used to find the angle of elevation?  
 a)  $\sin \theta$                       b)  $\cos \theta$                       c)  $\tan \theta$                       d)  $\sec \theta$
- A plane along a great circle will split the sphere into \_\_\_\_ parts.  
 a) 1                      b) 2                      c) 4                      d) infinity
- If the radius of the base of a right circular cylinder is halved keeping the same height, then the ratio of the volume of the cylinder thus obtained to the volume of original cylinder is  
 a) 1:2                      b) 1:4                      c) 1:6                      d) 1:8
- Which of the following is not a measure of dispersion?  
 a) Range                      b) standard deviation                      c) arithmetic mean                      d) variance

**II.ANSWER ALL THE QUESTIONS:****2 X 8 = 16**

- a) Construct a triangle ABC of base  $BC=5.6\text{cm}$   $\angle A = 40^\circ$  and the bisector of  $\angle A$  meets BC at D such that  $CD=4\text{cm}$ .  
(OR)
- Take a point which is 11cm away from the centre of a circle of radius 4cm and draw the two tangents to the circle from that point.
- a) Graph the following quadratic equations and state their nature of solutions.  
 $x^2-6x+9=0$ .  
(OR)
- b) Nishanth is the winner in a Marathon race of 12 km distance. He ran at the uniform speed of 12km/hr and reached the destination in 1 hour. He was followed by Aarathana, Jeyanth, Sathya and Swetha with their respective speed of 6km/hr, 4km/hr, 3km/hr and 2km/hr. And, they covered the distance in 2 hrs, 4 hrs and 6 hours respectively. Draw the speed-time graph and use it to find the time taken to Kaushik with his speed of 2.4km/hr.



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**DAY-8****ANSWER ALL THE QUESTIONS:****14 X 1 = 14**

1. If A and B are finite sets such that  $n(A)=p$ ,  $n(B)=q$  then the total number of functions that exist from A to B is  
 a)  $2^{pq}$                       b)  $2^{p+q-1}$                       c)  $q^p$                       d)  $p^q$ .
2. If  $f:A \rightarrow B$  is a constant function, then the range of 'f' will have \_\_\_\_\_ elements.  
 a) Infinity                      b) 1                      c) 2                      d) null set
3. Euclid's division Lemma states that for positive integers a and b, there exist unique integers q and r such that  $a=bq+r$ , where 'r' must satisfy  
 a)  $1 < r < b$                       b)  $0 < r < b$                       c)  $0 \leq r < b$                       d)  $0 < r \leq b$
4. The sum of exponents of the prime factors in the prime factorization of 1729 is  
 a) 1                      b) 2                      c) 3                      d) 4
5.  $\frac{3y-3}{y} \div \frac{7y-7}{3y^2}$  is  
 a)  $\frac{9y}{7}$                       b)  $\frac{9y^3}{21y-21}$                       c)  $\frac{21y^2-42y+21}{3y^3}$                       d)  $\frac{7(y^2-2y+1)}{y^2}$
6. If A is of order  $pxq$  and B is of order  $qxr$  then the order of BA is  
 a)  $Pxr$                       b)  $rxp$                       c) undefined                      d)  $rxq$
7. How many tangents can be drawn to the circle from an interior point?  
 a) 1                      b) 2                      c) 0                      d) 4
8. The number of straight lines perpendicular to the line  $2x-3y+6=0$  is  
 a) 1                      b) 2                      c) 0                      d) infinity
9. If A is a point on the Y-axis whose ordinate is 8 and B is a point on X-axis whose abscissae is 5 then the equation of the line AB is  
 a)  $8x+5y=40$                       b)  $8x-5y=40$                       c)  $x=8$                       d)  $y=5$
10. If  $\sin\theta + \cos\theta = a$  and  $\sec\theta + \operatorname{cosec}\theta = b$ , then the value of  $b(a^2-1)$  is  
 a)  $2a$                       b)  $3a$                       c) 0                      d)  $2ab$
11. If  $5x=\sec\theta$  and  $\frac{5}{x} = \tan\theta$ , then  $x^2 - \frac{1}{x^2}$  is equal to  
 a) 25                      b)  $1/25$                       c) 5                      d) 1
12. The ratio of the volumes of a cylinder, a cone and a sphere, if each has the same diameter and same height is  
 a) 1:2:3                      b) 2:1:3                      c) 1:3:2                      d) 3:1:2
13. A frustum of a right circular cone is of height 16cm with radii of its ends as 8cm and 20cm. Then, the volume of the frustum is  
 a)  $3328\pi\text{cm}^3$                       b)  $3228\pi\text{cm}^3$                       c)  $3240\pi\text{cm}^3$                       d)  $3340\pi\text{cm}^3$
14. The probability of getting a job for a person is  $(x/3)$ . If the probability of not getting the job is  $(2/3)$  then the value of x is  
 a) 2                      b) 1                      c) 3                      d) 1.5

**II.ANSWER ALL THE QUESTIONS:****2 X 8 = 16**

- 15.a) Draw a triangle ABC of base  $BC=8\text{cm}$ ,  $\angle A = 60^\circ$  and the bisector of  $\angle A$  meets BC at D such that  $BD=6\text{cm}$ . **(OR)**  
 b) Draw the two tangents from a point which is 5cm away from the centre of a circle of diameter 6cm. Also, measure the lengths of the tangents.
- 16.a) Graph the following quadratic equation and state the nature of the solutions:  $(2x-3)(x+2)=0$ . **(OR)**  
 b) A two wheeler parking zone near bus stand charges as below.

Time (in hours) (x)	4	8	12	24
Amount (in rupees) (y)	60	120	180	360

Check if the amount charged are in direct variation or in inverse variation to the parking time. Graph the data. Also (i) find the amount to be paid when parking time is 6 hour; (ii) find the parking duration when the amount paid is Rs.150.