



# MATHS

# **BOOKS - S CHAND MATHS (ENGLISH)**

# **SAMPLE QUESTION PAPER 01**



- **1.** The domain of the function f(x)=  $\sqrt{9-x^2}$  is :
  - A.  $\{-3 \leq x \leq 3\}$
  - $\mathsf{B.}\left\{x \leq -3 \text{ and } x \geq 3\right\}$
  - $\mathsf{C}.\left\{x\geq3\right\}$
  - D.  $\{-3 \leq x\}$

### Answer: A



2. Solve 
$$: an \Big( rac{\pi}{4} + heta \Big) + an \Big( rac{\pi}{4} - heta \Big) = 4$$

A. 
$$\frac{\pi}{3}$$
  
B.  $\frac{\pi}{6}$   
C.  $\frac{\pi}{4}$   
D.  $\frac{\pi}{2}$ 

## Answer: B

**3.** If 
$$heta=4530^\circ$$
 , then  $\sin\!4530^\circ\,$  is :

A. 
$$\frac{1}{2}$$
  
B.  $-\frac{1}{2}$   
C.  $\frac{1}{\sqrt{2}}$ 

D. 
$$\frac{\sqrt{3}}{2}$$

## Answer: B



# **4.** The third term of a G.P. is 2. Then product of the first five terms, is :

A. 32

B. 64

C. 16

D. 128

### Answer: A



5. If  $lpha \,\, {
m and} \,\, eta$  are roots of the equation  $x^2-2x+1=0$ , then the value

of  $rac{lpha}{eta}+rac{eta}{lpha}$  is

A. 4

B. 1

C. 2

D. 0

#### Answer: C

**6.** If the coefficients of  $x^2$  and  $x^3$  in the expansion of  $(3 + ax)^9$  be same, then the value of a is

A. 
$$\frac{3}{7}$$
  
B.  $\frac{7}{9}$   
C.  $\frac{9}{7}$ 

$$\mathsf{D}.\,\frac{7}{3}$$

## Answer: C



7. If  $1,\omega,\omega^2$  are cube roots of unity then the value of  $\left(3+5\omega+3\omega^2
ight)^3$  is

A. 6

B. 8

C. 12

D. 16

#### Answer: B



8. The point diametrically opposite to the point (-3, -4) on the circle
$x^2+y^2+2x+4y-3=0$ is :
A. (3, -4)
B. (-3, 4)
C. (1, 0)
D. (3, 4)

## Answer: C

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**9.** A straight line that has equal intercepts on axes but opposite in magnitude and passing through the points (3, 2) is :

A. x - y = 1

 $\mathsf{B.}\,x+y=1$ 

C. - x + y = 1

D. 
$$x + y = -1$$

Answer: A



10. 
$$\lim_{x \to (\pi)} \frac{\sin x}{x - \pi}$$
 is equal to  
A. 0  
B. 1  
C. -1

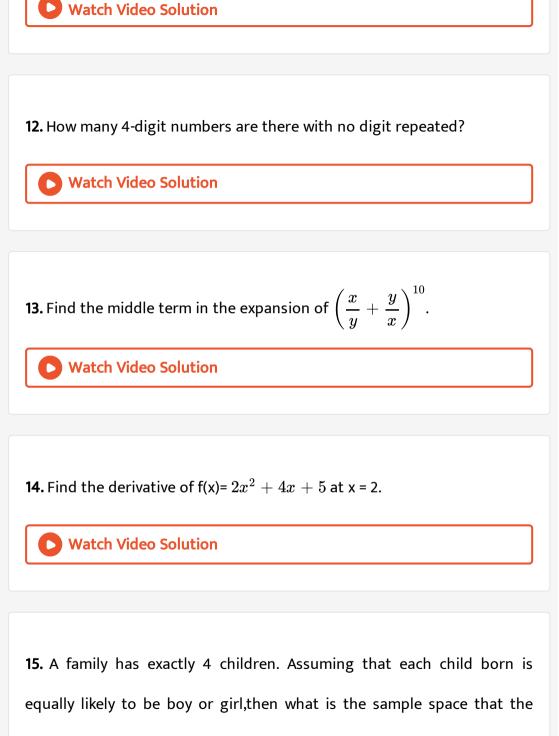
D. None of the above

#### Answer: C

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11. Find the numbers x and y if (x + 3, y - 6) = (5, 5).





event to heaving exactly one girl child ?



# **16.** If $A = \{1, 2, 3, 4, 5, 6\}B = \{2, 4, 5, 6, 8, 9, 10\}, \operatorname{find} A\Delta B.$



17. In a class of 35 students, 24 like to play cricket and 16 like to play football. Also, each student likes to play at least one of the two games.How many students like to play both cricket and football ?

18. Prove that : 
$$rac{\cos 2A}{1+\sin 2A}= aniggl(rac{\pi}{4}-Aiggr)$$

**19.** In any  $\Delta ABC$ , prove that

 $\frac{\sin A}{\sin(A+B)} = \frac{a}{c}$ 

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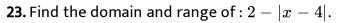
**20.** If  $tan \alpha = -2$ , find the value of  $sin \alpha (\alpha$  lies in the II Quadrant).

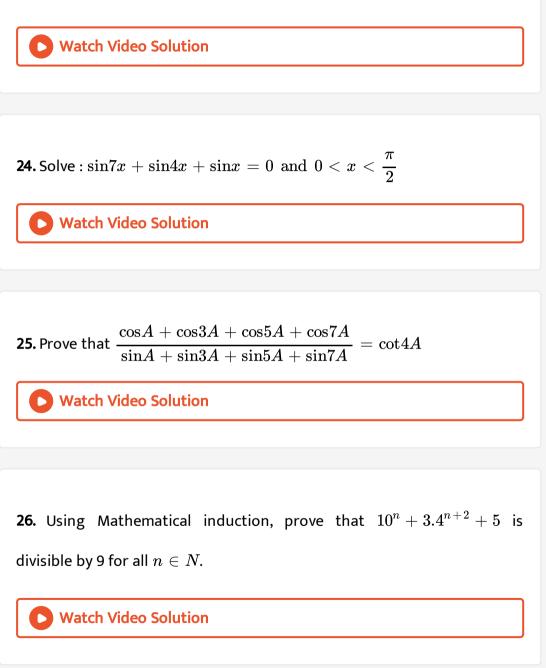


**21.** If 
$$rac{2+3i}{3-4i}=a+ib$$
, find the values a and b.

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22. If 
$$\alpha$$
 and  $\beta$  are roots of the equation  $x^2 + kx + 12 = 0$  and  $\alpha - \beta = 1$ , find k.





27. Differentiate the function  $\sin(2x-3)$  by First Principle of

differentiation.



28. Evaluate : 
$$\lim_{x o 0} rac{(1-x)^n-1}{x}$$

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29. If 'x' be real, find the maximum and minimum value of : 
$$y = \frac{x+2}{2x^2+3x+6}$$

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**30.** If  $\alpha, \beta$  be the roots of the equation  $x^2 + lx + m = 0$ , then from an equation whose roots are :  $(\alpha + \beta)^2$  and  $(\alpha - \beta)^2$ 

**31.** The sum of three consecutive numbers of a G.P is 56. If we sunbtract 1,7 and 21 from the these numbers in the order the resulting numbers from an A.P. Find the numbers.

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**32.** Find the equation of the circle which passes through the points (2, 3), (4, 5) and the centre lies on the straight line y - 4x + 3 = 0.

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33. Find the equation of acute angled bisector of lines :

$$3x - 4y + 7 = 0$$
 and  $12x - 5y - 8 = 0$ 

34. Find the mean and standard deviation of the following frequency

distribution :

Marks	0-4	5-9	10-14	15 - 19	20-24	25 - 29	30 - 3
No. of students	2	5	7	13	21	16	8

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## Section B

1. In the ellipse 
$$\frac{x^2}{6} + \frac{y^2}{8} = 1$$
, the value of eccentricity is  
A.  $\frac{1}{2}$   
B.  $\frac{2}{3}2$   
C.  $\frac{1}{3}$   
D.  $\frac{3}{2}$ 

#### Answer: A

## 2. If the distance between the points (a, 2, 1) and (1, -1, 1) is 5, then value of

a are :

- A. -5, -3
- B. 5, -3
- C. -5, 3
- D. 5, 3

#### Answer: B

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3. Find the equation of the hyperbola whose foci are  $(0, \pm 6)$  and conjugate axis is  $2\sqrt{11}$ .

**4.** If the line y = mx + 1 is tangent to the parabola  $y^2 = 4x$ , then find the value of m. Watch Video Solution 5. Write the converse of the statement. If a number is divisible by 9, then it is divisible by 3. Watch Video Solution **6.** Construct the truth table for the compound proposition (  ${ extsf{-}p} \lor q$  ) Watch Video Solution 7. Show that the statement : ' if x + 3 = 9, then x = 6' is truth by method of contrapositive. Watch Video Solution

8. Find the equation of the ellipse in the following case: focus is (1,2), directrix is 3x + 4y - 5 = 0 and  $e = \frac{1}{2}$ .



**9.** Find the centre, focus, eccentricity and length of latus rectum of the hyperbola  $16x^2 - 9y^2 = 144$ .

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10. In what ratio the point P(-2, y, z) divides the line joining the points A(2,

4, 3) and B(-4, 5, -6). Also, find the coordinates of point P.





**1.** The price index of a commodity is 140. Then, the percentage increase in price of the commodity in current year as compared to the base year is :

A. (i)  $4\,\%$ 

B. (ii) 40~%

C. (iii) 20~%

D. (iv) 10~%

Answer: B

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**2.**  $Q_1$  is always equal to :

A. (i)  $P_1$ 

B. (ii)  $P_{10}$ 

C. (iii)  $P_{25}$ 

D. (iv)  $P_{50}$ 

## Answer: C



**3.** Find the  $Q_1$  and  $Q_3$  for the following distribution : 5, 3, 6, 3, 13, 9, 8, 24,

19, 20, 18.

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**4.** Find  $D_7$  of the distibution  $x_1$ : 18, 20, 9, 15, 21, 26, 14, 13, 27, 22, 16, 28.

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**5.** If a machine costs Rs 10000/- in the year 2005 and Rs 18000/- in the year 2008, then find the price relative.



**6.** The mean weight of 150 students in a certain class is 60 kg. The mean weight of boys is 70 kg and that of girls in the class is 55 kg. Find the number of boys and girls in the class.

7. Find the correlation coefficient r(x,y) if :

$$n=10, \ \sum x=60, \ \sum y=60, \ \sum x^2=400, \ \sum y^2=580, \ \sum xy=305$$

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8. Find the Karl Pearson's coefficient of correlation between X and Y for

the following data :

X	5	4	3	2	1
Y	4	2	10	8	6