



## MATHS

# BOOKS - JEEVITH PUBLICATIONS MATHS (KANNADA ENGLISH)

## **ANNUAL EXAMINATION QUESTION PAPER -4**

#### Section A

**1.** Write the interval (-3, 0) in set builder form ?

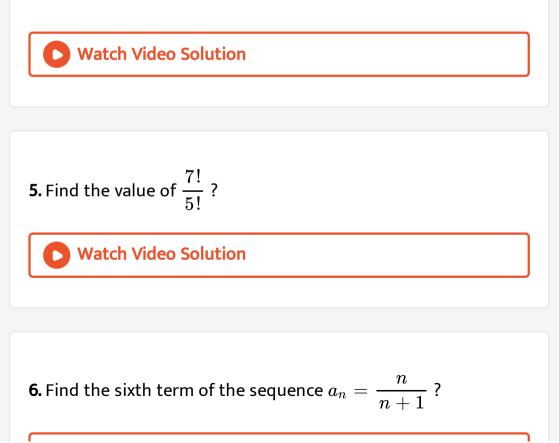


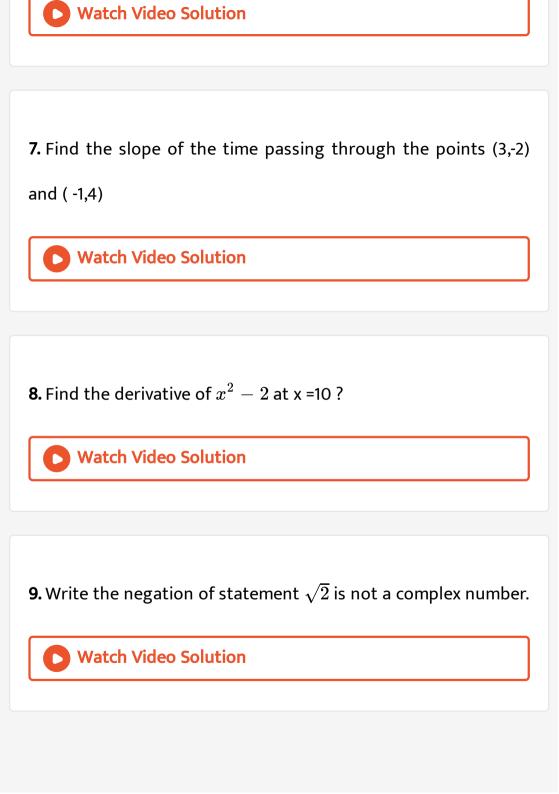
**2.** If `( x+ 1,y -2) =(3,1) Find the values of x and y.



**3.** If 
$$\cos x = rac{-3}{5}$$
, x lies in  $3^{rd}$  qudrant , Find the value of tan x ?

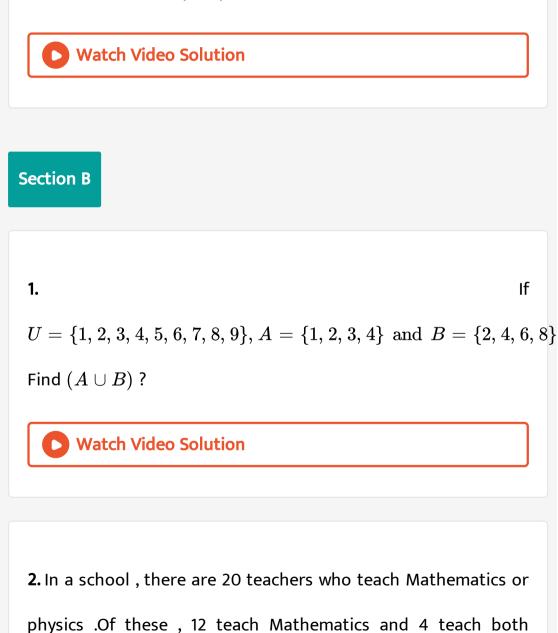
4. Find the multiplicative inverse of 1+i.





10. Two coins (a one rupee coin and a two rupee coin)are tossed

once. Write the sample space?



#### Physics and Mathematics. How many teach Physics ?



### 3. If $A = \{1, 2, 3\}, B\{3, 4\}, C = \{4, 5, 6\}$ , find $A imes (B \cup C)$ ?

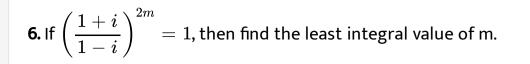


**4.** Find the radius of the circle in which a central angle of  $60^{\circ}$  intercepts an arc of length 37.4 cm (use  $\pi = \frac{22}{7}$ )

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5. Find the value of  $\sin 15^\circ$ 







7. Solve 5x-3 > 3x-5 and show the graph of the solution

on a number line.

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8. Find the distance of the point (3,-5) from the line

3x - 4y - 26 = 0

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**9.** Find the equation of the line through the points (1,-1) and (3,5).

11. Evaluate 
$$Lt_{x
ightarrow 0}rac{\sqrt{1+x}-1}{x}$$
 .



12. Write the converse and contrapositive of the statement "If a

triangle is eqalateral ,it is isosceless"?



**13.** The coefficient of variation for a distribution is 60 and standard deviation is 21. Find the arithmetic mean.



**14.** A card is selected from a pack of 52 cards.Find the probability that the card drawn is

(i) an ace

(ii) black card

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**1.** In a survey of 600 students in a school, 150 students were found to be taking tea and 225 taking coffee, 100 were taking both tea and coffee. Find how many students were taking neither tea nor coffee ?

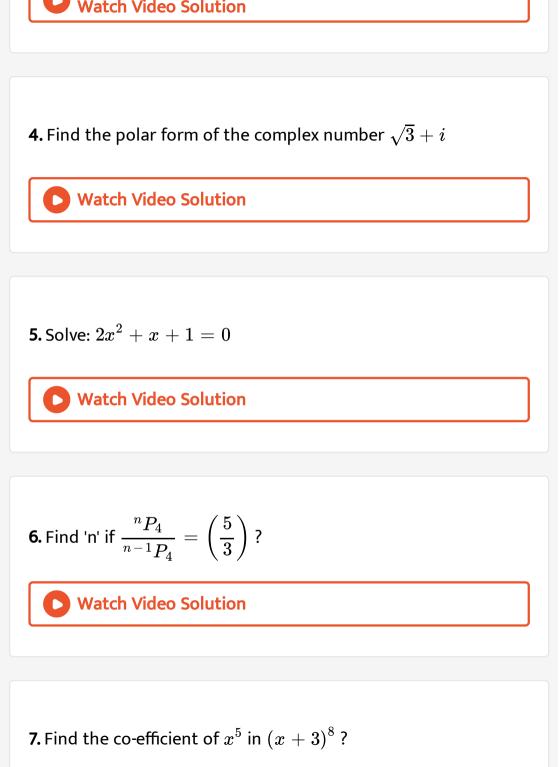
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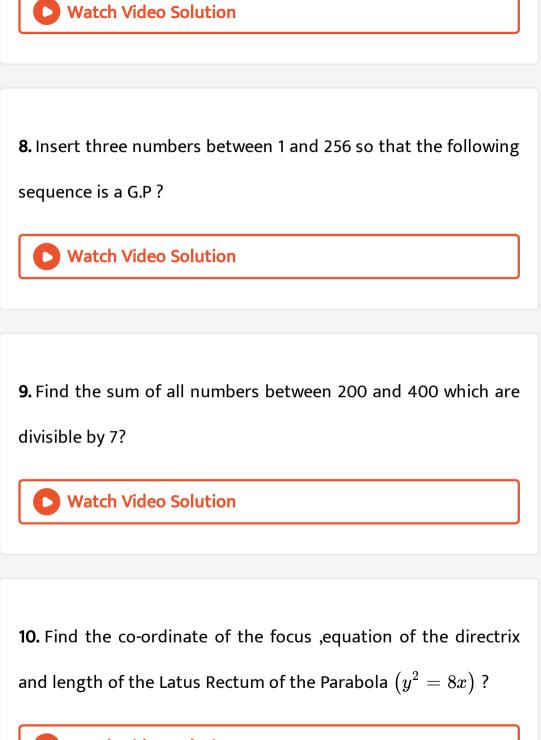
$$2.\sin 2x + \cos x = 0$$



**3.** Prove that :  $\sin 3x = 3 \sin x - 4 \sin^3 x$ 







**11.** Differentiate of  $\sin x$  w.r.t. x from first principles

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<b>12.</b> Verify by the method of contradiction that $\sqrt{7}$ is irrational number
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<b>13.</b> A committee of two persons is selected from two men and

two women.What is the probability that the committee will have

(i) no men (ii)two men



**14.** A bag contains 9 dics of which 4 are red,3 are blue and 2 are yellow. The discs are similar in shape and size. A disc is drawn at random from the bag. Calculate the probability that it be Blue.

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Section D
<b>1.</b> Draw the graph of the signum function write its domain and range.
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2. Prove that 
$$:$$
  $\frac{\sin 5x - 2\sin 3x + \sin x}{\cos 5x - \cos x} = \tan x$ 

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$${f 3.}\ 1^3+2^3+3^3+\ldots\ldots+n^3={n^2(n+1)^2\over 4}\,orall n\in N.$$

**4.** Solve the following system of inequalities graphivally  $2x+y> +4, x+y\leq 3, 2x-3y\leq 6,$ 

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5. A committee of 7 has to be formed from 9 boys and 4 girls. In

how many ways can this be done when the committee consists

of

(i) exactly 3 girls

(ii) atleast 3 girls?

(iii) atmost 3 girls?

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**6.** State and prove Binomial theorem for a positive integer index.

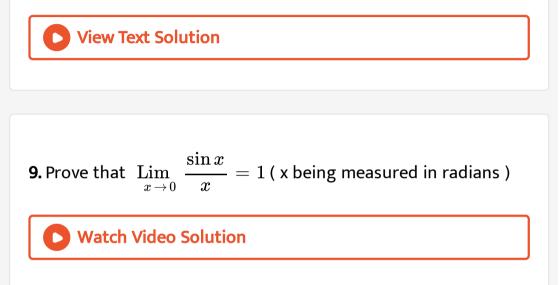
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7. Derive a formula for the angle between two lines with slopes

 $m_1 \,\, {
m and} \,\, m_2.$  Hence the slopes of the lines which make an angle  ${\pi\over 4}$  with the line x-2y+5=0

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**8.** Derive section formula in 3-D for internal division . Also find the co-ordinates of mid points of the line joining the points A(1, -2, 3) and B(3, 4, 8)?

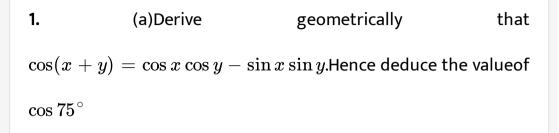


10. Find the mean deviation about the mean for the following

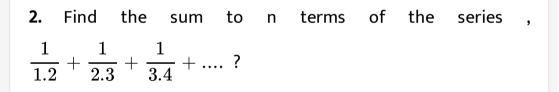
data.

Marks obtained	10 - 20	20-30	30-40	40 - 50	50-60	60 - 70	70 - 80
Number of students	2	3	8	14 .	8	3	2









**3.** Define ellipse and derive its equation in the form  $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1(a > b)$  .

