

MATHS

BOOKS - JEEVITH PUBLICATIONS MATHS (KANNADA ENGLISH)

ANNUAL EXAMINATION QUESTION PAPER MARCH 2014 SOUTH

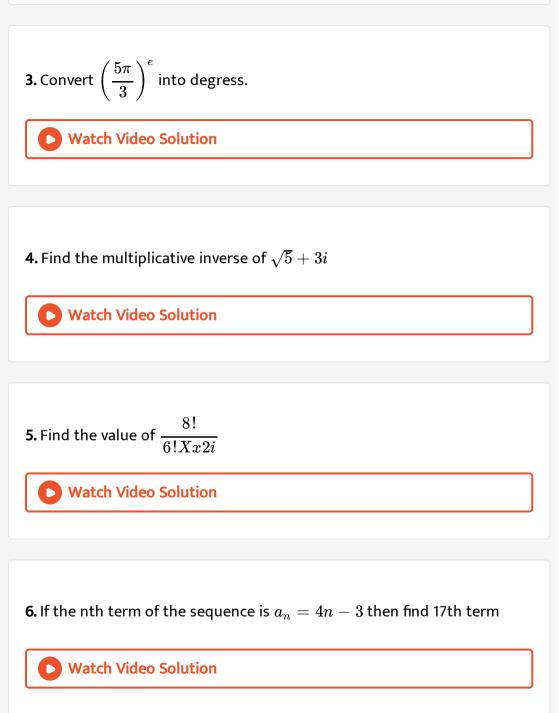


1. Write the $A = \{x \colon x \in R, 0 \leq x < 7\}$ as interval

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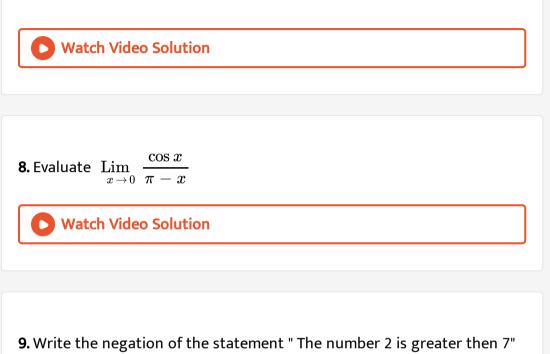
2. If `(x+ 1,y -2) =(3,1) Find the values of x and y .





7. Find the equation of the line through the point (-2,3) and having the

slope -4



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10. If `(2)/(pi) is the probability of an event A , What is the probability of

the event " not A"

1. If X and Y are two sets such that n (X) =17,n (Y) =23, and n $(X\cup Y)=38\,{
m find}\,{
m n}(X\cap Y)$

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 $U=\{x\!:\!x\leq 10, \mathrm{x}\in N\}A=\{x\!:\!\mathrm{x}\in N, x \;\; ext{is prime}\}B=\{x\!:\!\mathrm{x}\in N, x \;\; ext{is prime}\}B$

If

write $A \cap B$ in roster form.



3. Let A ={ 1,2,3......14} Define a relation R from A to A by R ={ x,y} : 3x -y =0

wherex,y in A } `Write down is domain and range



4. Find the radius of the circle in which a central angle of 60° intercepts

an arc of length 37.4 cm (use $\pi=rac{22}{7}$)

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5. Prove that
$$\sin 2x = rac{2 \tan x}{1 + \tan^2 x}$$

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6. Express $1+i\sqrt{3}$ in polar form

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7. Solve
$$rac{5-2x}{3} \leq rac{x}{6} - 10$$

8. Find the equation of the line parallel to the line 3x - 4y + 2 = 0 and passing through the point (-2, 3)Watch Video Solution

9. The line through the point (h,3) and (4,1) intersects the line 7x - 9y - 19 = 0 at right angle Find the value of h.

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10. Verify that the points (0, 7, 10), (-1, 6, 6) and (-4, 9, 6) are the

vertices of an isosceles triangle

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11. Evaluate
$$\lim_{x
ightarrow 3}rac{x^4-81}{2x^2-5x-3}$$

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

number then x is odd "

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

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14. Three coins are tossed once. Find the probability of getting atleast two

heads





1. If U ={ 1,2,3,4,5,6} is the universal set ,and A `= {2,3} ,B =(3,4,5} ,verify that

(AUB)' =A' nB'

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2. Let $f=\{(1,1),(2,3), (0,-1), (-1, -3)\}$ be a function from Z to Z defined by f(x) =

ax +b, for some integers a, b. Determine a, b.

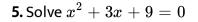


3. Prove that

$$\cos\left(\frac{3\pi}{2}+x\right) \cos(2\pi+x) \cdot \left[\cot\left(\frac{3\pi}{2}-x\right)\right) + \cot(2\pi+x)\right] = 1$$

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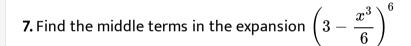
4. Find the conjugate of
$$rac{(3-2i)(2+3i)}{(1+2i)(2-i)}.$$



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6. In how many ways can the letters of the word PERMUTATIONS be arranged if (i) the words start P and end with S (ii) vowel are all together.

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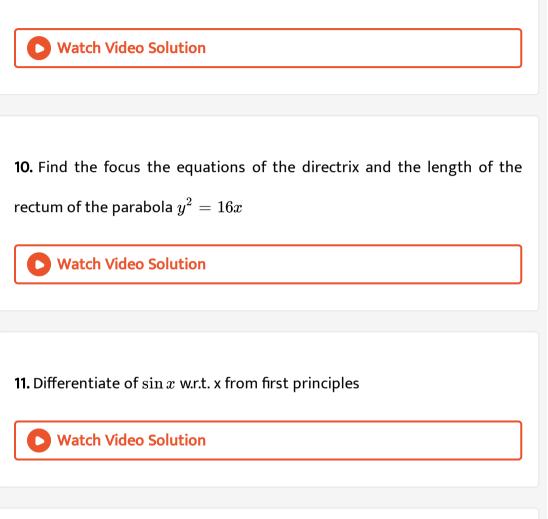
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8. The sum of first three terms of a G.P is $\frac{39}{10}$ and their product is 1. Find

the common ratio and the terms.

9. In an A.P if m^{th} term is n and n^{th} term is m, where $m
eq n, \,$ find the p^{th}

term .



12. Verify by the method of contradiction that $\sqrt{7}$ is irrational number

13. A committee of two persons is selected from two men and two women.What is the probability that the committee will have (i) no man ?(ii) one man ? (iii) two man ?

14. If E and F are two evetns such that
$$P(E) = \frac{1}{4}, P(F) = \frac{1}{2}$$
 and $P(E \text{ and } F) = \frac{1}{8}$. Find P(not E and not F)

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Part D

1. Draw the graph of the signum function write its domain and range.

2. Prove that
$$\cos^2 x + \cos^2 \left(x + rac{\pi}{3}
ight) + \cos^2 \left(x - rac{\pi}{3}
ight) = rac{3}{2}$$

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$${f 3.}\ 1^2+2^2+3^2+....+n^2={n(n+1)(2n+1)\over 6}\,orall n\in N.$$

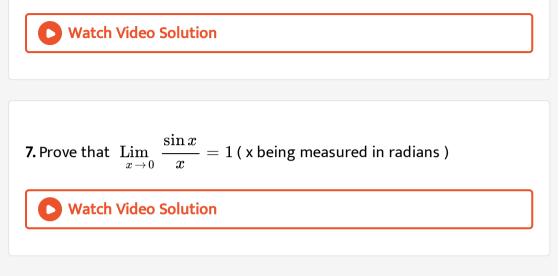
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4. If $2n_{c_3}$: $n_{c_3} = 11$: 1 find n Also find the value of n

5. Derive the expression for the length of the perpendicular drawn from

the point (x_1, y_1) yo the line ax + by + c = 0

6. Derive the section formula for the internal division in three dimensions.



8. Solve the following system of inequalities graphically :

 $5x+4y\leq 20, x\geq 1, y\geq 2$

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9. (a)Derive geometrically that $\cos(x+y) = \cos x \cos y - \sin x \sin y$

.Hence deduce the valueof $\cos 75^\circ$

10. Find the sum to n terms of the series .

 $3 imes 1^2+5 imes 2^2+7 imes 3^2+\,\ldots\ldots$



11. Define hyperbola as a set of points derive its equation in the form

$$rac{x^2}{a^2}-rac{y^2}{b^2}=1$$

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12. If f(x) =
$$\frac{x^{100}}{100} + \frac{x^{99}}{99} + \frac{x^{98}}{98} \pm - - + \frac{x^2}{2} + x + 1$$
 then prove that $f^1 = 100f^1(0)$