



### MATHS

## BOOKS - JEEVITH PUBLICATIONS MATHS (KANNADA ENGLISH)

# ANNUAL EXAMINATION QUESTION PAPER - 2018 (NORTH) (WITH ANSWERS)

Part A I Answer All The Questions

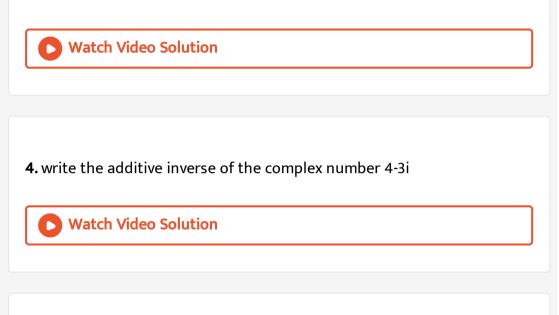
1. If  $A=\phi$  the empty set, then write the number of elements in P(A).

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**2.** If A = {1, 2} and B = {3, 4} then write  $A \times B$ .



**3.** Convert  $240^{\circ}$  into radian measure.

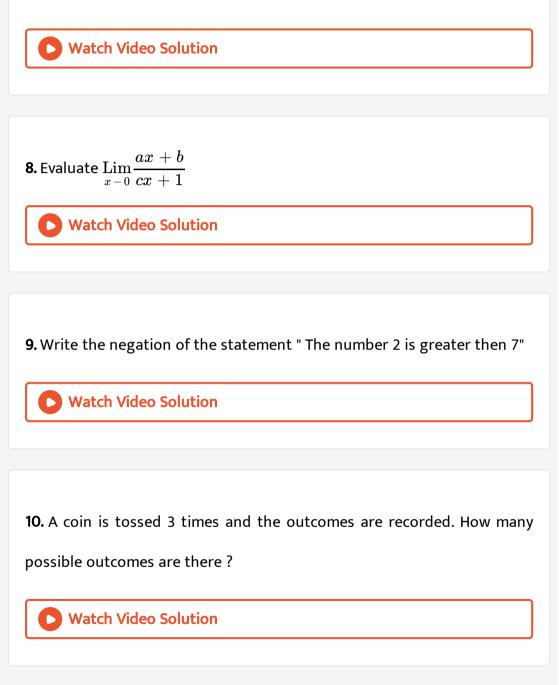


5. If  ${}^{n}C_{8} = {}^{n}C_{2}$  find the value of 'n'.

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**6.** If 
$$a_n=rac{n^2}{2^n}$$
 , then find  $a_7$  .

#### 7. Find the slope of the time passing through the points (3,-2) and (-1,4)



1. If  $U = \{1, 2, 3, 4, 5, 6, 7, 8, 9\}A = \{1, 2, 3, 4\}$  and  $B = \{2, 4, 6, 8\}$ , then find  $(A \cup B)$ '.

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**2.** If  $A = \{1, 2, 3, 4, 5, 6\}, B = (2, 4, 6, 8\}$ , then find A - B and B - A.

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**3.** Let A = { 1, 2, 3, 4, 5, 6} . Define a relation R from A to A by R = { (x, y) : y =

x + 1}. Depict the relation using an arrow diagram.



**4.** Find the radius of the circle in which a central angle of  $60^{\circ}$  intercepts

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

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**5.** Find the value of 
$$\sin\left(\frac{31\pi}{3}\right)$$
.

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**6.** Find the modulus and the argument of the complex number  $-\sqrt{3}+i$ 

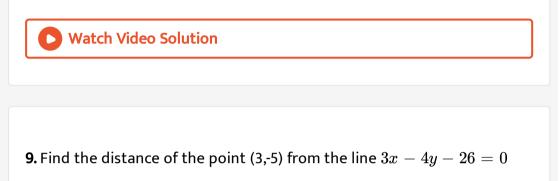
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7. Solve 7x + 3 < 5x + 9. Show the graph of the solution on number

line.

8. Find the equation of the line, which makes intercepts -3 and 2 on X and

Y-axes respectively.



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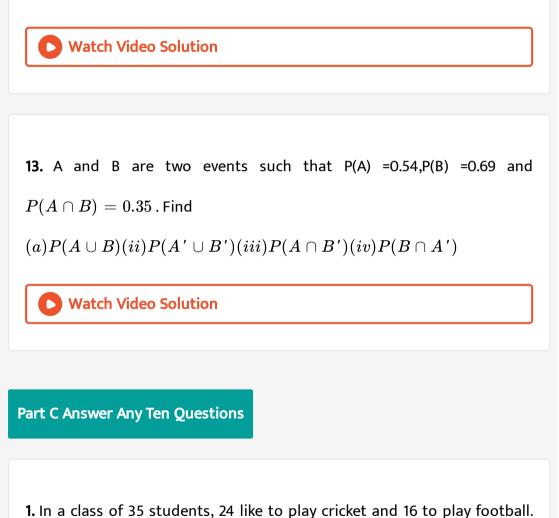
**10.** The centroid of a triangle ABC is at the point (1,1,1). If the co-ordinates of A and B are (3, -5,7) and (-1,7,6) respectively find the coordinates of the

point C .

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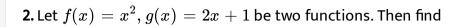
11. Evaluate 
$$LT_{x 
ightarrow 0} igg( {\sin ax \over \sin bx} igg).$$

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

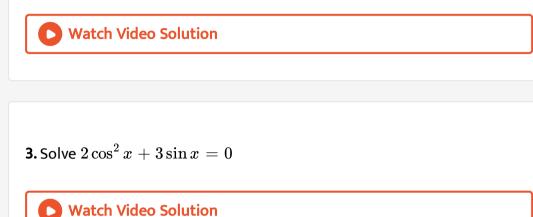


Also each student like to play atleast one of the two games. How many students like to play both cricket and football ?





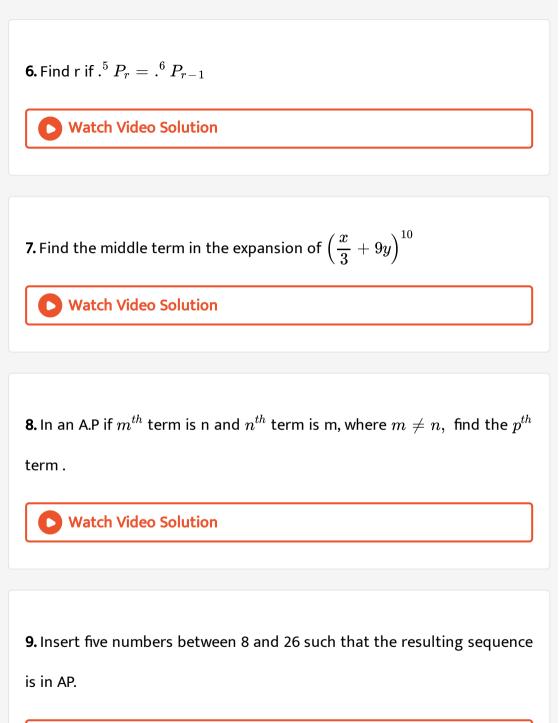
(i) (f + g) (x) (ii) (f - g) (x) (iii) (fg) (x)



**4.** Solve 
$$\sqrt{2}x^2 + x + \sqrt{2} = 0$$

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5. If 
$$\left(rac{1+i}{1-i}
ight)^{2m}=1$$
, then find the least integral value of m.



10. Find the coordinates of the vertices, length of the latus rectum and

eccentricity of the ellipse

$$rac{x^2}{49} + rac{y^2}{36} = 1$$

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

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12. Verify by the method of contradiction that  $\sqrt{2}$  is irrational .



13. A die is thrown once Find the probability that a prime numbers will

appear

- 14. A die is thrown. Find the probability that
- (i) A prime number will appear.
- (ii) A number greater than or equal to 3 will appear.
- (iii) A number more than 6 will appear.

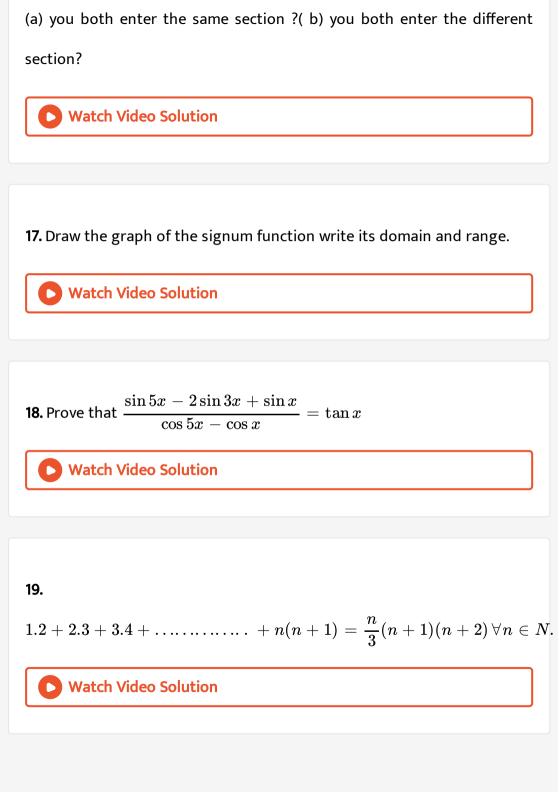
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- 15. A die is thrown. Find the probability that
- (i) A prime number will appear.
- (ii) A number greater than or equal to 3 will appear.
- (iii) A number more than 6 will appear.



16. Out of 100 students, two sections of 40 and 60 are formed. If you and

your friend are among the 100 students, what is the probability that



**20.** Solve graphically  $2x+y \geq 4, x+y \leq 3, 2x-3y \leq 6x \geq 0, y \geq 0$ 

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21. What is the number of ways of choosing 4 cards from a pack of 52

cards ? In how many of these

Four cards are of same suit

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22. What is the probability that 4 cards drawn at random from a well-

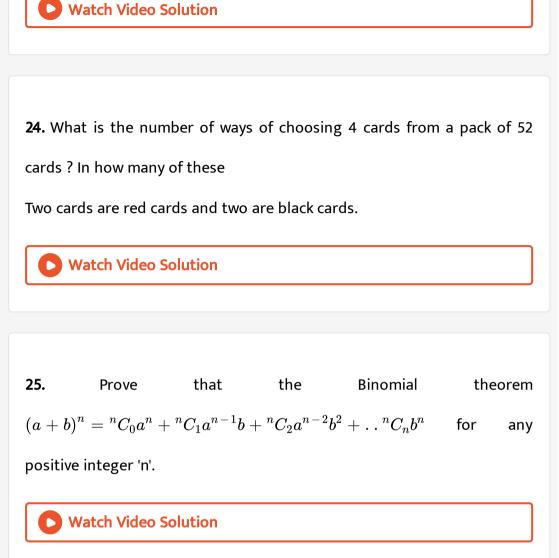
shuffled pack of playing cards belong to different suits?



23. What is the number of ways of choosing 4 cards from a pack of 52

cards ? In how many of these Four cards are face cards





**26.** Derive the formula to find the angle between two lines with slopes  $m_1$  and  $m_2$ 

**27.** Derive the formula to find the co-ordinates of a point which divide the line joining the points  $A(x_1, y_1, z_1)$  and  $B(x_2, y_2, z_2)$  internally in the ratio m:n.

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28. Prove that 
$$\lim_{x \to 0} \frac{\sin x}{x} = 1$$
 ( x being measured in radians )

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**29.** Compute the mean deviation about the mean for the following data.

C.I.	0-10	10-20	20-30	30-40	40-50	50-60
Frequency	2	10	2.0	15	10	3

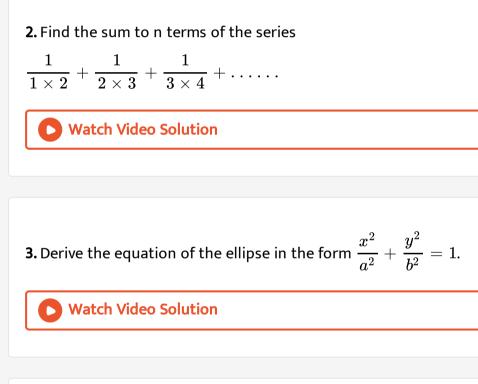
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Part E V Answer Any One Questions

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

.Hence deduce the valueof  $\cos 75^{\,\circ}$ 





**4.** (b) Find the derivative of 
$$\frac{x^5 - \cos x}{\sin x}$$
 with respect to x.