



## MATHS

# BOOKS - TELUGU ACADEMY MATHS (TELUGU ENGLISH)

# **IPE:MAY-2014**



1. Transformation the equation 4x - 3y + 12 = 0 into

(i) slope intercept form (ii) intercept form

2. Find the value of 'p' if the lines 4x - 3y - 7 = 0, 2x + py + 2 = 0 and 6x + 5y - 1 = 0 are concurrent .,

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**3.** Find the ratio which the XZ -plane divides the line joining A(-2, 3, 4) and B(1, 2, 3)

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4. Find the equation of the plane which makes intercepts

1,2,4 on the x,y,z - axes respectively.





5. Evaluate 
$$Lt_{x
ightarrow 0} rac{x(e^x-1)}{1-\cos x}$$

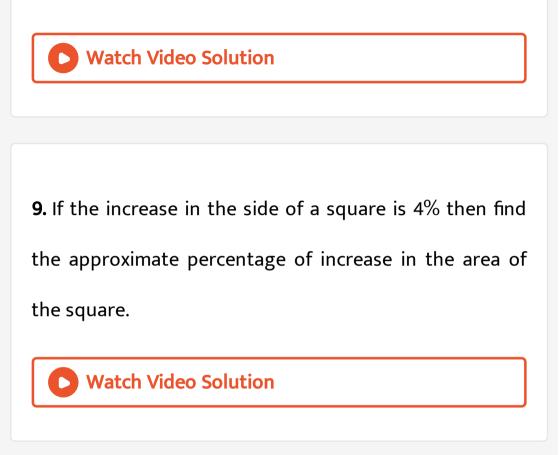
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6. Compute 
$$\lim_{x
ightarrow\infty}~rac{x^2+5x+2}{2x^2-5x+1}$$

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7. If 
$$f(x)=1+x+x^2+\ldots\ldots+x^{100},$$
 then find  $f'(1).$ 

8. If 
$$y = ae^{nx} + be^{-nx}$$
, then prove that  $y'' = n^2 y$ .



10. Define the strictly increasing function and strictly

decreasing function on an interval.



1. If the distance from 'P' to the points (2,3) and (2,-3) are

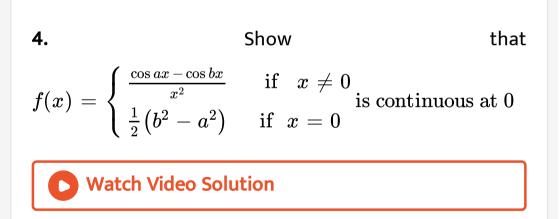
in the ratio 2:3, then find the equation of the locus of P.



2. When the axes rotated through an angegle  $\frac{\pi}{4}$ , find the transformed equation of  $3x^2 + 10xy + 3y^2 = 9$ .

3. If Q(h,k) is the foot of the perpendicular of  $P(x_1,y_1)$  on the line ax+by+c=0 then prove that  $(h-x_1), a=(k-y_1), b=-(ax_1+by_1+c)\colon \left(a^2+b^2
ight)$ 

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5. Find the derivative of  $\cos ax$  from the first Principle.



6. Find the equations of the tangent and the normal to

the curve  $y=x^3+4x^2$  at (-1,3)



7. Find the length of subtangent, subnormal at a point

on the curve

x=a(cost+sint), y=a(sint-tcost)





**1.** Find the orthocentre of the triangle formed by the

lines  $x+2y=0,\,4x+3y=5$  and 3x+y=0

2. Show that the product of the perpendicular from (alpha,beta) to the pair of lines 
$$S \equiv ax^2 + 2hxy + by^2 + 2gx + 2fy + c = 0$$
 is  $rac{|a\alpha^2 + 2h\alpha\beta + 2g\alpha + 2f\beta + c|}{\sqrt{(a-b)^2 + 4h^2}}$  Hence or otherwise

find the product of the perpendicular from the origin

**3.** Find the angle between the lines joining the origin to the points of intersection of the curve  $x^2 + 2xy + y^2 + 2x + 2y - 5 = 0$  and the line 3xy+1=0.

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4. Find the angle between the lines whose d.c's are related by  $l+m+n=0\&l^2+m^2-n^2=0$ 

5. If 
$$\sqrt{1-x^2} + \sqrt{1-y^2} = a(x-y)$$
 then prove that  
 $\frac{dy}{dx} = \frac{\sqrt{1-y^2}}{\sqrt{1-x^2}}.$   
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6. The curves 
$$ax^2 + by^2 = 1$$
 and  $Ax^2 + By^2 = 1$ 

intersect orthogonally, then

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7. Find the positive integers x and y such that x + y = 60 and  $xy^3$  is maximum.

