Maxima & Minima

SUBJECT : MATHEMATICS
CHAPTER NUMBER: 6
CHAPTER NAME : Application of Derivatives

Applied problems on Maxima and Minima

Problem-1

Find two numbers whose sum is 24 and whose product is as large as possible.

Problem-2

Show that all rectangles inscribed in a given fixed circle , the square has maximum area.

An Apache helicopter of enemy is flying along the curve given by $y = x^2 + 7$. A soldier, placed at $(3, 7)$ want to shoot down the helicopter when it is nearest to him. Find the nearest distance.

Problem-4

A window is in the form of a rectangle surmounted by a semi-circular opening. The total perimeter of the window is 10cm. Find the dimension of the window to admit maximum light through the whole opening.

Problem-5

AB is the diameter of a circle and C is any point on circle. Show that area of ΔABC is maximum when it is isosceles.

Problem-5

A square piece of tin of side 24 cm is to be made into a box without top by cutting a square from each corner and folding up the flaps to form a box. What should be the side of a square to be cut off so that the volume of the box is maximum? Also, find the maximum volume.

Q1. Find the volume of the largest cylinder that can be inscribed in sphere of radius r cm.

Q2. Show that the height of the cylinder of maximum volume that can be inscribed in a sphere

of radius a is $\frac{2a}{\sqrt{3}}$.

Q3. Show that the volume of the largest cone that can be inscribed in a sphere of radius R is $\frac{8}{27}$

of the volume of the sphere.

Q4. Prove that the radius of the right circular cylinder of greatest curved surface which can be

inscribed in a given cone is half of that cone.

THANKING YOU

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