Worksheet: Application of Derivatives (Rate of Change, Tangents, Maxima/Minima)

IB · Class 12 · Mathematics · 3 questions · 14 marks

Name: _____ Date: _____ Score: _____ / 14

Q1. Find the equations of the tangent and normal to the curve y = x² 3x 2 at the point (2, 4). *[3 marks]*

Q2. A window is in the form of a rectangle surmounted by a semicircular opening. The total perimeter of the window is 10 m. Find the dimensions of the window that will admit maximum light through the whole opening. *[5 marks]*

Q3. Prove that the volume of the largest cone that can be inscribed in a sphere of radius R is 8/27 of the volume of the sphere. *[6 marks]*