Worksheet: Continuity and Differentiability

IB · Class 12 · Mathematics · 8 questions · 33 marks

Name: _____ Date: _____ Score: _____ / 33

Q1. Check whether f(x)=3x+2 if x<=1, 5x if x>1, is continuous at x=1. *[3 marks]*

Q2. Differentiate sin(3x^2) w.r.t. x. *[2 marks]*

Q3. Find dy/dx if x^2+y^2=25. *[4 marks]*

Q4. Differentiate y=x^(cos x) w.r.t. x. *[5 marks]*

Q5. If x=t^2, y=t^3, find dy/dx. *[4 marks]*

Q6. Find the second order derivative of x^4. *[5 marks]*

Q7. Find k so that f(x)=kx+5 if x<=2, x^2-1 if x>2, is continuous at x=2. *[5 marks]*

Q8. Show that f(x)=|x-2| is not differentiable at x=2. *[5 marks]*