

Worksheet: Continuity and Differentiability

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

Name: _____

Date: _____

Score: _____ / 33

Q1. Check whether $f(x)=3x+2$ if $x \leq 1$, $5x$ 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 $x \leq 2$, 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]
