

Question #42375, Math, Integral Calculus

Calculate f_{xxyz} if $f(x,y,z) = \sin(3x+yz)$.

Solution. $f(x,y,z) = \sin(3x + yz)$

$$f_x(x,y,z) = 3\cos(3x + yz)$$

$$f_{xx}(x,y,z) = -9\sin(3x + yz)$$

$$f_{xxy}(x,y,z) = -9z\cos(3x + yz)$$

$$f_{xxyz}(x,y,z) = -9\cos(3x + yz) + 9yz\sin(3x + yz).$$

Answer. $f_{xxyz}(x,y,z) = 9[yz\sin(3x + yz) - \cos(3x + yz)]$.