

Math 201-07 Quiz 1 Term 122

Exercise: Use the chain rule to find $\frac{dz}{dt}$ when

$$z = x^2y + xy, \quad x = 2 + t^3, \quad y = t^2 - 1$$

Exercise: If $z = f(x, y)$ where f is differentiable and

$$\begin{aligned}x &= g(t) \quad , \quad y = h(t) \\g(3) &= 2 \quad , \quad h(3) = 7 \\g'(3) &= 5 \quad , \quad h'(3) = -4 \\f_x(2, 7) &= 6 \quad , \quad f_y(2, 7) = -8\end{aligned}$$

find $\frac{dz}{dt}$ when $t = 3$.