Mathematics 122

Quiz #18 Name: Key

You must show your work to get full credit.

Let a, b, c be constants. Compute the following derivatives:

(1) $y = 5e^x + 7x^2$ $\quad y' =$ $5e^x + 14x$

1 pt

(2) $C = 4 \cdot 3^q + 3\sqrt{q}$ $\quad \frac{dC}{dq} =$ $4 \cdot \ln(3) \cdot 3^q + \frac{3}{2} q^{-\frac{1}{2}}$

1 pt $= 4 \cdot 3^q + 3q^{\frac{1}{2}}$

(3) $f(t) = 5\ln(t)$ $\quad f'(t) =$ $\frac{5}{t}$

1 pt

(4) $w = 2ae^z + 5b\ln(z) + c^3$ $\quad \frac{dw}{dz} =$ $2ae^z + \frac{5b}{z}$

1 pt (Note $(c^3)' = 0$ as c is a constant)

(5) $y = 4^x + \frac{5}{x^3}$ $\quad \frac{dy}{dx} =$ $\ln(4) 4^x - 15x^{-4}$

1 pt $= 4^x + 5x^{-3}$