Mathematics 122

Quiz #16 Name: Key

You must show your work to get full credit.

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

1 pt (1) $y = 3x^4 + 2x + 1$. $\frac{dy}{dx} = 12x^3 + 2$

1 pt (2) $f(t) = \frac{5}{t^2}$. $= 5t^{-2}$ $f'(t) = -10t^{-3}$

1 pt (3) $C(q) = 5 + 3\sqrt{q}$. $= 5 + 3q^{\frac{1}{2}}$ $C'(q) = \frac{3}{2}q^{-\frac{1}{2}}$

1 pt (4) $A = ar^4 + 2br^2 + c$. $\frac{dA}{dr} = 4ar^3 + 4br$

1 pt (5) $y = \frac{2a}{\sqrt{x}} + 5b^3$. $= 2ax^{-\frac{1}{2}} + 5b^3$ $y' = -ax^{-\frac{3}{2}}$

$y' = -\frac{1}{2}2ax^{-\frac{1}{2}-1} + 0$