Mathematics 122

Name: Key

Quiz #14

You must show your work to get full credit.

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

(1) $y = 3x^4 - 5x^2 + 7x - 9$.

$y' = 12x^3 - 10x + 7$

1 pt

(2) $y = 3\sqrt{t} + \dfrac{4}{t^2}$.

$\dfrac{dy}{dt} = \dfrac{3}{2}t^{-\frac{1}{2}} - 8t^{-3}$

1 pt $= 3t^{\frac{1}{2}} + 4t^{-2}$

$y' = \frac{3}{2}t^{-\frac{1}{2}} - 8t^{-3}$

(3) $A = ar^2 + br + c$.

$\dfrac{dA}{dr} = 2ar + b$

1 pt

(4) $h(\theta) = a\theta^n + \dfrac{b}{\theta^3}$.

$h'(\theta) = na\theta^{n-1} - 3b\theta^{-3}$

1 pt $= a\theta^n + b\theta^{-3}$

(5) $f(x) = a^2 + \pi^n$. (HINT: This is a trick question.)

$f'(x) = 0$

1 pt

This is a constant