Mathematics 122

Quiz #18 Name: key

You must show your work to get full credit.

1. Let $P'(t) = 1.05P(t)$ and $P(0) = 5{,}000$.

(a) Give a formula for $P(t)$. $P(t) = 5000e^{1.05t}$

(b) What is $P(20)$? $P(20) = 6.594 \times 10^{12}$

$P(20) = 5000e^{1.05(20)}$

$= 6.594 \times 10^{12}$

2. Find the following derivatives:

(a) $h(t) = 4e^{.5t} + 19\ln(t)$ $h'(t) = 2e^{.5t} + \frac{19}{t}$

(b) $y = 2(x^5 - 4x)^3$ $y' = 6(x^5-4x)^2(5x^4-4)$

(c) $R(q) = 4e^{q^2-3q}$ $R'(q) = 4e^{q^2-3q}(2q-3)$