

Homework 17, Math 1303

Note Title

4/1/2009

① Find the following integrals (antiderivatives)

a) $\int 7 dx$

b) $\int x^8 dx$

c) $\int 5x^{-7} dx$

d) $\int \frac{2}{x^{10}} dx$

e) $\int \frac{2x^2}{7} - \frac{8}{3}x^4 dx$

f) $\int (x^2 + 5)(x - 3) dx$

g) $\int \frac{2}{\sqrt{x^3}} - \frac{4\sqrt{x^5}}{9} dx$

h) $\int (3x + 2)^3 dx$

② Find the following integrals with initial conditions

a) $y' = -x^2 + 2x$, $y(2) = 1$, find $y(x)$

b) $y' = \frac{5}{\sqrt{x}}$, $y(9) = 50$, find $y(x)$

c) $y'' = -3x^2 + 4x$, $y'(0) = 0$, $y(0) = 5$, find $y(x)$

③ Suppose the marginal revenue function is given by
 $R'(q) = 275 - q - 0.3q^2$. Find the revenue for $q = 100$

④ If the fixed costs for producing Home Quality Widgets is \$2000 and the marginal cost is
 $C'(q) = 0.08q^2 - 1.6q + 6.5$, find the cost for producing 25 units.

⑤ Find the following integrals

a) $\int \frac{1}{x} dx$

b) $\int e^x dx$

c) $\int 5e^x + \frac{1}{3x} dx$