Math 150 Name:_____
Chapter 4 Review

Find or Evaluate each Integral:

1) $\int 200x^4\,dx$ 2) $\int\left(\sqrt{x^3}+e^x+\frac{4}{x}\right)dx$ 3) $\int_0^6 e^{-5x}\,dx$

4) $\int_{-1}^{2}(5x+4x^3)\,dx$

Find each Integral:

5) $\int t^4(t^5+6)^3\,dt$ 6) $\int\sqrt{4x^2+36}\,dx$

7) A cookie company determines its marginal cost of the x^{th} gourmet cookie to be: $c'(x)=-0.0002x+1.25$ where the cost to make 10 gourmet cookies is \$17.49.

a) Find the cost function C(x)

b) Use the cost function to determine the cost to produce 1000 cookies

8) Find the area under $y=5x-x^2-6$ on [2,3]. Sketch and shade the area.

9) Find the area bounded by $f(x)=9-x^2$ *and* $g(x)=-x-3$. Include a sketch of the area.

10) Find the average value of $y=4t^3+2t$ over [-1 , 2]

11) A company estimates that its revenue will grow at a rate given by: $R'(t)=3e^{3t}$. Where R'(t) is the rate at which the revenue is increasing on the t^{th} day. Find the total (accumulated) revenue for the first 4 days.

Answers:

1) $40x^5+c$ 2) $\frac{2}{5}\sqrt{x^5}+e^x+4Lnx+C$ 3) $\frac{-1}{5e^{30}}+\frac{1}{5}$ 4) 45/2

5) $\frac{(t^5+6)^4}{20}+C$ 6) $x\sqrt{x^2+9}+9Ln\left|x+\sqrt{x^2+9}\right|+C$

7) a. $C(x)=-0.0001x^2+1.25x+5$ b. The cost to make 1000 cookies is \$1155

8) 1/6 9) 343/6 10) average value = 6

11) the total revenue is approximately $162,753.79