# (5.4) Indefinite Integrals & Net Change Theorem

Name: _____

1. Compute each of the following indefinite integrals

   (a) $\int 3x^2 - 2x^3 + \sqrt{x}\, dx$

   (b) $\int \frac{2}{x} + \frac{8}{x^3}\, dx$

   (c) $\int \frac{1 + 2x + x^3}{\sqrt[3]{x}}\, dx$

   (d) $\int (v^2 - 1)(v + 2)\, dv$

   (e) $\int \frac{5(2x + 3)^2}{x^3}\, dx$

   (f) $\int \frac{\sec^3\theta \tan^4\theta}{\tan^3\theta \sec^2\theta}\, d\theta$

   (g) $\int \frac{1 - \sin^2\theta}{\cos\theta}\, d\theta$

2. Compute each of the following definite integrals

(a) $\displaystyle\int_0^1 \frac{1+y^2}{(1+y^2)^2}\,dy$

(b) $\displaystyle\int_{\frac{1}{2}}^{\frac{\sqrt{3}}{2}} \frac{\sqrt{1-u^2}}{1-u^2}\,du$

(c) $\displaystyle\int_1^{\ln 5} 1-\frac{(e^x)^3}{e^{2x}}\,dx$

(d) $\displaystyle\int_2^5 \frac{6x^2-x-1}{4x-2}\,dx$