Assignment #2 Definite Integral

This assignment should completed and sent to me on or before May 4/20.

All answer should be neat and clear.

Question 1 a,c,e,g,i,k,n,o
Question 3 a,b,c

The answers are given so it is the procedure I am looking for.

processes. This inverse relationsh
noticed by Isaac Barrow, was used by Newton and Leibniz t
calculus a powerful method for solving problems in mathemat
science.

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1. Evaluate the following definite integrals.

(a) $\int_{-6}^{7} 2\,dx$

(b) $\int_{-1}^{5} (6x - 7)dx$

(c) $\int_{1}^{2} (5 + 4x - 6x^2)dx$

(d) $\int_{0}^{1} (t^2 + 6t - 1)dt$

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

(f) $\int_{0}^{1} (x^{99} + 1)dx$

(g) $\int_{2}^{3} \frac{1}{t^2}\,dt$

(h) $\int_{1}^{4} (x - \sqrt{x})dx$

(i) $\int_{0}^{1} \sqrt[4]{x^5}\,dx$

(j) $\int_{1}^{8} \frac{2}{\sqrt[3]{x}}\,dx$

(k) $\int_{1}^{2} \frac{x^3 + x^2 + 1}{x^3}\,dx$

(l) $\int_{1}^{4} \left(\frac{\sqrt{x} + 1}{x}\right)dx$

(m) $\int_{0}^{64} \sqrt{y}(1 + \sqrt[3]{y})dy$

(n) $\int_{0}^{\frac{\pi}{2}} (8x + \cos x)dx$

(o) $\int_{0}^{\frac{\pi}{6}} (\sec x \tan x)dx$

(p) $\int_{\frac{\pi}{4}}^{\frac{\pi}{3}} (3 \sin \theta - \sec^2 \theta)d\theta$

3. Evaluate each integral.

(a) $\int_0^1 e^x\,dx$

(b) $\int_{-1}^1 2^x\,dx$

(c) $\int_0^{\frac{1}{2}} \frac{1}{\sqrt{1-x^2}}\,dx$

(d) $\int_1^{\sqrt{3}} \frac{12}{1+x^2}\,dx$

(e) $\int_{-1}^1 \left(x+1+\frac{3}{x^2+1}\right)dx$

(f) $\int_{-\pi}^0 (2e^x+\sin x)dx$

4. What is wrong with the following calculation?

$$\int_{-2}^1 \frac{1}{x^4}\,dx = \frac{x^{-3}}{-3}\Big]_{-2}^1 = -\frac{1}{3x^3}\Big]_{-2}^1 = -\frac{1}{3}-\frac{1}{24} = -\frac{}{}$$

PROBLEMS PLUS

Given that the area above the x-axis is equal to the area belo
the x-axis, find the equation of the parabola.

EXERCISE 11.2

1. (a) 26 (b) 30 (c) -3 (d) $\frac{7}{3}$ (e) $\frac{27}{4}$ (f) 1.01

(g) $\frac{1}{6}$ (h) $\frac{17}{6}$ (i) $\frac{4}{9}$ (j) 9 (k) $\frac{11}{8} + \ln 2$

(l) $2 + \ln 4$ (m) $\frac{48\ 128}{33}$ (n) $\pi^2 + 1$

(o) $\frac{2}{\sqrt{3}} - 1$ (p) $\frac{1}{2}(3\sqrt{2} - 1) - \sqrt{3}$

2. (a) $\frac{1}{6}x^6 - \frac{1}{2}x^4 + 4x + C$ (b) $\frac{2}{7}x^{\frac{7}{2}} + C$

(c) $\frac{1}{2}t^2 + 2\ln|t| + C$

(d) $x + \frac{4}{3}x^{\frac{3}{2}} + \frac{1}{2}x^2 + C$ (e) $\frac{4}{7}x^{\frac{7}{4}} - \frac{20}{3}x^{\frac{3}{4}} + C$

(f) $\sin\theta - \cos\theta + C$ (g) $x^5 + 2\csc x + C$

(h) $x - 2\cot x + C$

3. (a) $e - 1$ (b) $\frac{3}{2\ln 2}$ (c) $\frac{\pi}{6}$ (d) π

(e) $2 + \frac{3}{2}\pi$ (f) $-2e^{-\pi}$

4. The function is not continuous on $[-2, 1]$, so