Calculus

Chapter 5: Integration

Lesson 7: The Definite Integral

Question #1

Reference Q.477
Evaluate:
$$\int_1^4 \left(\frac{2}{x} - e^{3x}\right)\,dx$$

Question #2

Reference Q.478
Evaluate:
$$\int_0^3 (x+2)^2\,dx$$

Question #3

Reference Q.480
Evaluate:
$$\int_0^2 (3x-1)^4 dx$$

Question #4

Reference Q.481
Evaluate:
$$\int_0^1 \frac{x}{x^2+1}\,dx$$

Question #5

Reference Q.482
Evaluate:
$$\int_1^2 \frac{(\ln x)^2}{x}$$

Question #6

Reference Q.483
Evaluate:
$$\int_2^{10} x\sqrt{x-1}dx$$

Question #7

Reference Q.484
Evaluate:
$$\int_0^{\frac{3\pi}{2}} 2\cos\frac{x}{3}dx$$

Question #8

Reference Q.485
Evaluate:
$$\int_9^{16} \frac{1+\sqrt{x}}{\sqrt{x}}\,dx$$

Question #9

Reference Q.486
Evaluate using technology:
$$\int_{\frac{\pi}{4}}^{\frac{\pi}{3}} 4x\sec 3x\tan 3x$$

Question #10

Reference Q.487
Evaluate:
$$\int_0^{10} \frac{x^{\frac{5}{3}}}{x^{-\frac{2}{3}}}\,dx$$

Question #11

Reference Q.488
Evaluate:
$$\int_{1.5}^4 \frac{dx}{\sqrt{3x+1}}$$

Question #12

Reference Q.489
Evaluate:
$$\int_{-1}^1 \frac{4x^2}{\sqrt{3-x^3}}\,dx$$

Question #13

Reference Q.490
Evaluate:
$$\int_0^{2\pi} \frac{dx}{2+\left(\sqrt{2}x\right)^2}$$

Question #14

Reference Q.491
Evaluate:
$$\int_1^2 \frac{(x+3)\,dx}{\sqrt{x^2+6x-6}}$$

Question #15

Reference Q.492
Evaluate:
$$\int_0^{\frac{\pi}{3}} \sin x \cos x dx$$

Question #16

Reference Q.493
Evaluate:
$$\int_0^1 \frac{dx}{\sqrt{8-\left(2\sqrt{2}x\right)^2}}$$

Question #17

Reference Q.428
Evaluate using FTOC Part I:
$$\frac{d}{dx}\int_x^e \ln\theta d\theta$$

Question #18

Reference Q.429
Evaluate using FTOC Part I:
$$\frac{d}{dx}\int_x^1 |2t+1|\,dt$$

Question #19

Reference Q.9238
Evaluate the following definite integral:
$$\int_0^2 \sqrt{4x^2-4x+1}\,dx$$

Question #20

Reference Q.9239
AP Prep:
Evaluate:
$$\int_{-2}^3 \frac{x}{|x|}\,dx$$

Question #21

Reference Q.9240
For what values of a does $\int_1^a x^n\,dx = n$, where n is some real constant?

Question #22

Reference Q.9241
Evaluate:
$$\int_b^a \frac{x}{x^2-1}\,dx$$
where a and b are real constants.