

1. The volume of the solid formed by revolving the region bounded by the graphs of $y = x^2 + 2$, $y = 0$, $x = 0$ and $x = 2$ about the y -axis is

- (a) 16π _____ (correct)
(b) 8π
(c) 4π
(d) 2π
(e) π

Similar to Example #3
page 468

2. The volume of the solid formed by revolving the region in the first quadrant bounded by the graphs of $y = 3x - x^2$, $y = 0$ about the line $x = 4$ is

- (a) $\frac{45\pi}{2}$ _____ (correct)
(b) $\frac{35\pi}{2}$
(c) 21π
(d) 24π
(e) 22π

Similar to Example
Q # 23 page 470

3. The arc length of the graph of $x = \frac{1}{3}(y^2 + 2)^{\frac{3}{2}}$; $0 \leq y \leq 2$ is equal to

- (a) $\frac{14}{3}$ _____ (correct)
(b) $\frac{13}{3}$
(c) $\frac{16}{3}$
(d) $\frac{3}{4}$
(e) $\frac{8}{3}$
- Q # 19 page 481

4. The area of the surface generated by revolving the graph of $y = \sqrt{25 - x^2}$; $0 \leq x \leq 4$ about the y -axis is equal to:

- (a) 20π _____ (correct)
(b) 30π
(c) 10π
(d) 16π
(e) 24π
- Q # 30 page 512

5. $\int_0^1 \frac{x^2 - x}{x^2 + x + 1} dx =$

(a) $1 - \ln(3)$ _____ (correct)

(b) $\ln(3)$

(c) 1

(d) $1 + \ln(3)$

(e) $\ln(3) - 1$

Similar to Example 1 (c)

page 516

6. $\int_0^{\frac{\pi}{3}} x \sec^2 x dx =$

(a) $\frac{\sqrt{3}}{3} \pi - \ln 2$ _____ (correct)

(b) $\frac{\sqrt{3}}{3} \pi + \ln 2$

(c) $\frac{\pi}{2} + \ln 3$

(d) $\frac{\pi}{2} - \ln 3$

(e) $\frac{\sqrt{3}}{3} \pi - \ln 3$

Q # 13 page 583

7. $\int \tan^3(3t) \sec^3(3t) dt =$

(a) $\frac{\sec^5(3t)}{15} - \frac{\sec^3(3t)}{9} + C$ _____(correct)

(b) $\frac{\sec^3(3t)}{9} - \frac{\sec(3t)}{3} + C$

(c) $\frac{\tan(3t)}{15} - \frac{\tan^3(3t)}{9} + C$

(d) $\frac{\tan^3(3t)}{9} - \frac{\tan(3t)}{3} + C$

(e) $\frac{\sec^4(3t)}{12} - \frac{\sec^2(3t)}{6} + C$

Similar to Q#27
Page 538

8. $7 \int_0^{\pi} \sin(3x) \cos(4x) dx =$

(a) -6 _____(correct)

(b) 6

(c) 4

(d) -4

(e) 0

Similar to Q# 64
page 539

$$9. \int_0^{\frac{\sqrt{3}}{2}} \frac{1}{(1-x^2)^{\frac{5}{2}}} dx =$$

- (a) $2\sqrt{3}$ _____ (correct)
 (b) $3\sqrt{3}$
 (c) $4\sqrt{3}$
 (d) $6\sqrt{3}$
 (e) 3

Q# 38 page 547

$$10. \int \frac{\sqrt{x^2+1}}{x^4} dx =$$

- (a) $-\frac{(x^2+1)^{\frac{3}{2}}}{3x^3} + c$ _____ (correct)
 (b) $-(x^2+1)^{\frac{3}{2}} + \frac{1}{3x^3} + c$
 (c) $-\frac{1}{3(x^2+1)^{\frac{3}{2}}} - \frac{(x^2+1)^{\frac{3}{2}}}{x^3} + c$
 (d) $-\frac{3x^3}{\sqrt{x^2+1}} + c$
 (e) $-\frac{x^2}{\sqrt{x^2+1}} - 3(x^2+1)^3 + c$

Similar to Q#22
page 547

11. $\int \frac{x^2 + x - 1}{x^3 + 2x^2 + x} dx =$

(a) $-\ln|x| + 2\ln|x+1| - \frac{1}{x+1} + C$ _____ (correct)

(b) $\ln|x| - 2\ln|x+1| - \frac{1}{x+1} + C$

(c) $-2\ln|x| + \ln|x+1| - \frac{1}{x+1} + C$

(d) $2\ln|x| - \ln|x+1| - \frac{1}{x+1} + C$

(e) $-\ln|x| - 2\ln|x+1| - \frac{1}{x+1} + C$

Similar to Example
#2 page 553

12. $\int_{\frac{\pi}{3}}^{\frac{\pi}{2}} \frac{dx}{\cos x - 1} =$

(a) $1 - \sqrt{3}$ _____ (correct)

(b) $\sqrt{3} + 1$

(c) $\sqrt{3} - 1$

(d) $1 - \sqrt{2}$

(e) $\sqrt{2} + 1$

Similar to Q# 58
page 571

13. The improper integral $\int_0^{\infty} xe^{-2x} dx$

- (a) converges to $\frac{1}{4}$ _____ (correct)
(b) converges to $\frac{1}{2}$
(c) converges to 0
(d) converges to 2
(e) diverges

Similar to Q# 22
page 579

14. The improper integral $\int_2^{\infty} \frac{1}{\sqrt{x-1}} dx$

- (a) diverges _____ (correct)
(b) converges to 2
(c) converges to $\frac{3}{2}$
(d) converges to 3
(e) converges to 1

~~Q# 58~~

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Q	MASTER	CODE01	CODE02	CODE03	CODE04
1	A	C ₇	E ₃	C ₆	C ₁
2	A	C ₁₄	D ₁₂	B ₈	E ₁₁
3	A	B ₁₁	E ₁₀	A ₉	D ₁₄
4	A	B ₉	A ₂	C ₁₄	C ₄
5	A	B ₆	B ₁₄	A ₇	B ₃
6	A	A ₃	A ₅	A ₁₃	B ₁₂
7	A	E ₄	D ₈	A ₁	E ₆
8	A	A ₁	C ₉	D ₁₀	C ₅
9	A	C ₁₃	A ₁	D ₂	E ₉
10	A	C ₁₀	D ₁₃	D ₁₂	C ₂
11	A	C ₅	D ₄	D ₁₁	E ₁₀
12	A	D ₁₂	B ₁₁	D ₃	A ₁₃
13	A	C ₂	A ₇	A ₄	A ₇
14	A	A ₈	B ₆	C ₅	D ₈