

Solutions to review for exam 4.

(1)

(A) $-\frac{1}{2x^2} + 2 \cos x - \ln |x| + xy + C$

(B) $2 \arcsin(u) + C$

(C) $\frac{t^3}{3} - \frac{A}{t} + C$

(D) $5e^t + 7t + C$

(2)

(A) $-\sin(x) \sin(\cos^2(x))$

(B) $-2x(x^2 + 1)^{100}$

(3)

0 (since $x^5 \cos(x^2)$ is odd).

(4) $\frac{2}{\pi}(\ln(\frac{3\pi}{2}) - 2.5 - \ln(\pi))$

(5) $1 + \frac{\pi}{4}$

(6)

(A) -4

(B) -4

(C) $-31 + 3(b - a)$

(7) $W(x) = 2e^x + x$

(8)

(A) $f(1)$

(B) $x = 0$ and $x = 4$

(C) $y = 2$ and $y = -1$ respectively.

(9)

(A) $x = -3$ and $x = 3$

(B) $x = 0$

(C) $x = 3$

(D) $x = -3$

(10) 60

(11)

(A) $t = \frac{30}{9.8}$ second, $S(\frac{30}{9.8}) = -\frac{9.8}{2}(\frac{30}{9.8})^2 + \frac{(30)^2}{9.8} + 40$ meter

(12) $\frac{7}{100}$

(13)

(106 - 3e⁻³) liter.

(14)

(A) $\frac{1}{3}$

(B) 0

(C) 1

(D) ∞

(E) 0

(15)

(A) 80π sec

(B) $\frac{3}{25}\pi h^3$ cm³

(C) -0.0207 cm/sec.

(16)

(A) increasing (4mph)

(B) decreasing (-4mph)

(17)

(A) $z = \sqrt{0.25 + x^2}$

(B) $\frac{dz}{dt} = 0.693$ km/min

(C) $\frac{d\theta}{dt} = 0.4$ radians/min

(18)

(A) V

(B) IV

(C) III

(D) II

(E) III

(F) I