

Name: _____

Take Home Quiz Chapter 5

PART A: No calculator allowed!!

1. Evaluate: $\int_0^{\sqrt{e-1}} \frac{x}{x^2+1} dx$

(A) 0

(B) $\frac{\ln(e-1)}{2}$

(C) $\frac{1}{2}$

(D) 1

(E) $\sqrt{e-1}$

2. Evaluate: $\int_0^{\frac{\pi^2}{9}} \frac{dx}{\sqrt{x} \cos^2(\sqrt{x})}$

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

(B) $\frac{\sqrt{3}}{2}$

(C) $\frac{2\sqrt{3}}{3}$

(D) $\sqrt{3}$

(E) $2\sqrt{3}$

3. The average value of $f(x) = -\sin x$ on the interval $[-2, 4]$ is

(A) $\frac{\cos 4 + \cos 2}{6}$

(B) $\frac{\cos 2 - \cos 4}{2}$

(C) $\frac{\cos 4 + \cos 2}{2}$

(D) $\frac{\cos 4 - \cos 2}{2}$

(E) $\frac{\cos 4 - \cos 2}{6}$

4. $\frac{d}{dx} \left[\int_3^{2x^3} e^t dt \right] =$

(A) e^{2x^3}

(B) $6x^2 e^{2x^3}$

(C) $e^{2x^2} - e^3$

(D) $6x^2 e^{2x^3} - e^3$

(E) e^x

5. If $\int_a^b f(x)dx = 8$, $a = 2$, $f(x)$ is continuous, and the average value of f on $[a, b]$ is 4, then $b =$

- (A) 0 (B) 2 (C) 4 (D) 3 (E) 5

PART B: GRAPHING CALCULATOR ALLOWED
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6. A particle moves in a straight line, and its velocity at any time t is given by $v(t) = 5 - e^t$. What is the total distance the particle travels from $t = 0$ to $t = 3$?

- (A) 4.086 (B) 5.086 (C) 11.086 (D) 12.180 (E) 19.086

7.

x	1	2	3	4	5	6
$f(x)$	0.14	0.21	0.28	0.36	0.44	0.54

The table above contains values of a continuous function f at several values of x . Estimate $\int_2^5 f(x)dx$ using a trapezoidal approximation with three equal subintervals.

- (A) 0.85 (B) 0.965 (C) 1.080 (D) 1.290 (E) 1.930