Student: _____	**Instructor:** Lance Burger	**Assignment:** Team Test 1 (Practice)
Date: _____	**Course:** Math 76 Calculus 2	
Time: _____	**Book:** California State University, Fresno: Math 75: Calculus	

1. The velocity of a projectile fired straight into the air is given every half second. Use right endpoints to estimate the distance the projectile travelled in four seconds.

Time (sec)	Velocity (in. / sec)
0	126
0.5	121.1
1.0	116.2
1.5	111.3
2.0	106.4
2.5	101.5
3.0	96.6
3.5	91.7
4.0	86.8

A. 870.8 m

B. 435.4 m

C. 415.8 m

D. 831.6 m

2. Use a finite approximation to estimate the area under the graph of the given function on the stated interval as instructed.

$f(x) = x^2$ between $x = 4$ and $x = 8$, using a left sum with four rectangles of equal width

A. 174

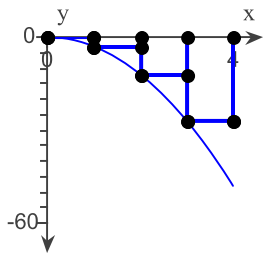
B. 165

C. 149

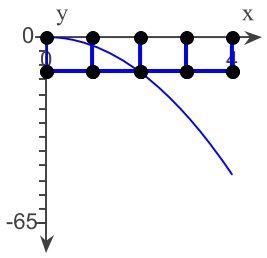
D. 126

3. Graph the function $f(x) = -3x^2$ over the interval [0,4]. Partition the interval into 4 subintervals of equal length. Then add to your sketch the rectangles associated with the Riemann sum $\sum_{k=1}^{4} f(c_k)\,\Delta x_k$, using the midpoint in the kth subinterval for c_k.

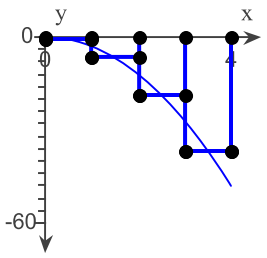
A.



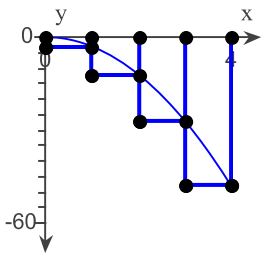
B.



C.



D.



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4. Graph the integrand and use geometry to evaluate the integral.

$$\int_{-3}^{10} |x| \, dx$$

A. 13

B. $\frac{109}{2}$

C. $\frac{91}{2}$

D. 109

5. Suppose that f and g are continuous and that $\int_3^7 f(x)\,dx = -3$ and $\int_3^7 g(x)\,dx = 10$.

Find $\int_3^7 [f(x) - 5g(x)]\,dx$.

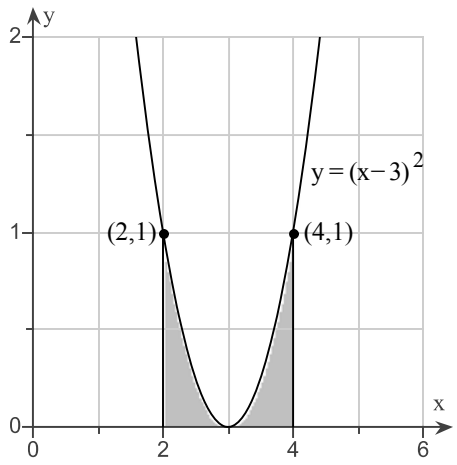
A. -53

B. -13

C. 47

D. -65

6. Find the area of the shaded region.



A. $\frac{1}{3}$

B. $\frac{5}{3}$

C. $\frac{2}{3}$

D. $\frac{4}{3}$

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7. Find the derivative.

$$\frac{d}{dt}\int_0^{\sin t} \frac{1}{9-u^2}\,du$$

A. $\dfrac{\cos t}{9-\sin^2 t}$

B. $\dfrac{1}{\cos t\,(9-\sin^2 t)}$

C. $\dfrac{-\cos t}{9-\sin^2 t}$

D. $\dfrac{1}{9-\sin^2 t}$

8. Find the value(s) of x at which the given function equals its average value on the given interval.

$f(x) = 4 - x^2; [-5,4]$

A. ± 3

B. $\pm\sqrt{6}$

C. $\pm\sqrt{7}$

D. $\sqrt{5}$

9. Find the average value of the function over the given interval.

$y = x^2 - 2x + 2; [0,7]$

A. $\dfrac{70}{3}$

B. 37

C. $\dfrac{29}{4}$

D. $\dfrac{34}{3}$

10. Evaluate the integral.

$$\int \frac{dx}{x \ln x^4}$$

A. $\frac{1}{4} \ln (\ln x^4) + C$

B. $\ln (\ln x^4) + C$

C. $\frac{1}{4} \ln x^4 + C$

D. $\ln x^4 + C$

11. Evaluate the integral.

$$\int \frac{1}{t^2} \sin\left(\frac{4}{t} + 4\right) dt$$

A. $\frac{1}{4} \cos\left(\frac{4}{t} + 4\right) + C$

B. $-\cos\left(\frac{4}{t} + 4\right) + C$

C. $-\frac{1}{4} \cos\left(\frac{4}{t} + 4\right) + C$

D. $4 \cos\left(\frac{4}{t} + 4\right) + C$

12. Evaluate the integral.

$$\int e^t \cot (e^t - 6) dt$$

A. $\ln|\cos (e^t - 6)| + C$

B. $\ln|\sin (e^t - 6)| + C$

C. $e^t \ln|\sin (t - 6)| + C$

D. $\ln|\sin (t - 6)| + C$

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13. Use the substitution formula to evaluate the integral.

$$\int_0^{\frac{1}{3}\ln\sqrt{3}} \frac{3e^{3x}dx}{1+e^{6x}}$$

A. $\frac{\pi}{12}$ B. $-\frac{\pi}{12}$ C. $-\frac{\pi}{6}$ D. $\frac{\pi}{6}$

14. Find the area of the region between the curve $y = 6^{2-x}$ and the interval $0 \le x \le 2$ on the x-axis.

A. 36

B. $\frac{36}{\ln 6}$

C. $35 \ln 6$

D. $\frac{35}{\ln 6}$

15. Evaluate the integral by using multiple substitutions.

$$\int \frac{\sin\sqrt{t}}{\sqrt{t}\cos^3\sqrt{t}}dt$$

A. $\frac{4}{\sqrt{\cos\sqrt{t}}}+C$

B. $-\frac{4}{\sqrt{\cos t}}+C$

C. $\frac{4}{\sqrt{\sin\sqrt{t}}}+C$

D. $-\frac{2}{t^{3/2}}+C$

16. (This problem is worth 5 pts!) Show all work for full credit.
Using the defintion of the defininte integral as an infinite limit of the Riemann sum, prove that:

$$\int_0^1 x^2 + x\,dx = \frac{5}{6}.$$

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1. C

2. D

3. C

4. B

5. A

6. C

7. A

8. C

9. D

10. A

11. A

12. B

13. A

14. D

15. A

16.