Name: _____

Instructor: Dwyer

Exam III
November 30, 1999

- The Honor Code is in effect for this examination. All work is to be your own.
- No calculators.
- The exam lasts for one hour.
- Be sure that your name is on every page in case pages become detached.
- Be sure that you have all 11 pages of the test.

Good Luck!

PLEASE MARK YOUR ANSWERS WITH AN X, not a circle!

1.	(a)	(b)	(c)	(d)	(e)
2.	(a)	(b)	(c)	(d)	(e)
3.	(a)	(b)	(c)	(d)	(e)
4.	(a)	(b)	(c)	(d)	(e)
5.	(a)	(b)	(c)	(d)	(e)
6.	(a)	(b)	(c)	(d)	(e)

DO NOT WRITE IN THIS BOX!

Total multiple choice: _____

7. _____

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11. _____

12. _____

13. _____

Total: _____

Name: _____

Instructor: Dwyer

Multiple Choice

1.(5 pts.)

$$\int \big(x^2 + \sin(x)\big)dx =$$

(a) $\dfrac{x^3}{3} - \cos(x).$ (b) $\dfrac{x^3}{3} + \cos(x).$ (c) $\dfrac{x^3}{3} - \cos(x) + c.$

(d) $\dfrac{x^3}{3} + \cos(x) + c.$ (e) $2x + \sin(x) + c.$

2.(5 pts.) Suppose that $\displaystyle\int_{-1}^{2} f(x)\,dx = -2$ and $\displaystyle\int_{-1}^{5} f(x)\,dx = 7.$ Evaluate $\displaystyle\int_{2}^{5} 2\,f(x)\,dx.$ Be careful with the arithmetic.

(a) 5. (b) 9. (c) 10.

(d) 18. (e) Cannot be determined.

Name: _____

Instructor: Dwyer

3.(5 pts.) Suppose that f is continuous on $[0, 10]$ and $\int_0^{10} f(x)dx = 50$. Which of the following must be true?

(a) There exists a c in $[0, 10]$ such that $f(c) = 5$.

(b) There exists exactly one c in $[0, 10]$ such that $f(c) = 5$.

(c) There exists exactly one c in $[0, 10]$ such that $f(c) = 10$.

(d) There exists a c in $[0, 10]$ such that $f(c) = 50$.

(e) There exists a c in $[0, 10]$ such that $f'(c) = 5$.

4.(5 pts.) Evaluate $\int_0^{\sqrt{2}} \left(\sqrt{4 - x^2} - x\right) dx$ by interpreting it as an area that you know from elementary geometry.

(a) 0. (b) $\frac{\pi}{2}$. (c) π.

(d) 4π. (e) Cannot be determined.

Name: _____

Instructor: Dwyer

5.(5 pts.) Find the derivative $\dfrac{dy}{dx}$ of the function $y = \displaystyle\int_{\pi}^{\sin(x)} t^2 dt$.

(a) $\pi x^2 \cos(x)$. (b) $2x \cos(x)$. (c) $t^2 \cos(t)$.

(d) $x^2 \sin(x)$. (e) $\sin^2(x) \cos(x)$.

6.(5 pts.)

$$\sum_{k=0}^{3} (2k+1) =$$

(a) $\displaystyle\int_0^3 (2x+1)\, dx$. (b) -14 (c) 10.

(d) 16. (e) 20.

Name: _____

Instructor: Dwyer

Partial Credit

7.(10 pts.) Solve the initial value problem: $\frac{dy}{dx} = \sin^3(x)\cos(x)$;$y(\pi) = -3$.

Name: _____

Instructor: Dwyer

8.(10 pts.) Integrate $\int_0^1 x^3(x^4-1)^{10}dx$.

Name: _____

Instructor: Dwyer

9.(10 pts.) Find the area between the curves $y = 2 - x^2$ and $y = x$ bounded by the lines $x = 0$ and $x = 2$.

Name: _____

Instructor: Dwyer

10.(10 pts.) Find the average value of $f(x) = \cos(x) + x$ from $x = 0$ to $x = 2\pi$.

Name: _____

Instructor: Dwyer

11.(10 pts.)

a. Estimate the integral $\int_0^4 \frac{1}{\sqrt{25-x^2}}dx$ using the **trapezoidal** rule with $n = 4$.

b. Given that the fourth derivative of $\frac{1}{\sqrt{25-x^2}}$ is bounded in absolute value by 2.1 on the interval $[0, 4]$, give an upper bound for the error in using **Simpson's** rule with $n = 410$.

We are looking for formulas; in particular DO NOT attempt to evaluate the sums or do any arithmetic.

Name: _____

Instructor: Dwyer

12.(10 pts.) Find the volume of the solid which lies betwen the planes $x = -1$ and $x = 1$. The cross sections perpendicular to the x–axis are squares whose diagonals run from $y = -(1 - x^2)$ to $y = (1 - x^2)$.

Name: _____

Instructor: Dwyer

13.(10 pts.) Find the volume of the solid formed when the region bounded by the x-axis, the curve $y = \sqrt{\sin(x)}$ and $x = \pi$ is rotated around the x-axis.

Name: _____

Instructor: Cholak

Exam III
November 30, 1999

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3.	(a)	(b)	(c)	(d)	(e)
4.	(a)	(b)	(c)	(d)	(e)
5.	(a)	(b)	(c)	(d)	(e)
6.	(a)	(b)	(c)	(d)	(e)

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Total multiple choice: _____

7. _____

8. _____

9. _____

10. _____

11. _____

12. _____

13. _____

Total: _____

Name: _____

Instructor: Cholak

Multiple Choice

1.(5 pts.)

$$\int \big(x^2 + \sin(x)\big)dx =$$

(a) $\dfrac{x^3}{3} - \cos(x).$ (b) $\dfrac{x^3}{3} + \cos(x).$ (c) $\dfrac{x^3}{3} - \cos(x) + c.$

(d) $\dfrac{x^3}{3} + \cos(x) + c.$ (e) $2x + \sin(x) + c.$

2.(5 pts.) Suppose that $\int_{-1}^{2} f(x)\,dx = -2$ and $\int_{-1}^{5} f(x)\,dx = 7.$ Evaluate $\int_{2}^{5} 2\,f(x)\,dx.$ Be careful with the arithmetic.

(a) 5. (b) 9. (c) 10.

(d) 18. (e) Cannot be determined.

Name: _____

Instructor: Cholak

3.(5 pts.) Suppose that f is continuous on $[0, 10]$ and $\int_0^{10} f(x)dx = 50$. Which of the following must be true?

(a) There exists a c in $[0, 10]$ such that $f(c) = 5$.

(b) There exists exactly one c in $[0, 10]$ such that $f(c) = 5$.

(c) There exists exactly one c in $[0, 10]$ such that $f(c) = 10$.

(d) There exists a c in $[0, 10]$ such that $f(c) = 50$.

(e) There exists a c in $[0, 10]$ such that $f'(c) = 5$.

4.(5 pts.) Evaluate $\int_0^{\sqrt{2}} \left(\sqrt{4 - x^2} - x\right) dx$ by interpreting it as an area that you know from elementary geometry.

(a) 0. (b) $\frac{\pi}{2}$. (c) π.

(d) 4π. (e) Cannot be determined.

Name: _____

Instructor: Cholak

5.(5 pts.) Find the derivative $\frac{dy}{dx}$ of the function $y = \int_{\pi}^{\sin(x)} t^2 dt$.

(a) $\pi x^2 \cos(x)$. (b) $2x \cos(x)$. (c) $t^2 \cos(t)$.

(d) $x^2 \sin(x)$. (e) $\sin^2(x) \cos(x)$.

6.(5 pts.)

$$\sum_{k=0}^{3}(2k+1) =$$

(a) $\int_0^3 (2x+1)\, dx$. (b) -14 (c) 10.

(d) 16. (e) 20.

Name: _____

Instructor: Cholak

Partial Credit

7.(10 pts.) Solve the initial value problem: $\frac{dy}{dx} = \sin^3(x)\cos(x)$;$y(\pi) = -3$.

Name: _____

Instructor: Cholak

8.(10 pts.) Integrate $\int_0^1 x^3(x^4-1)^{10}dx$.

Name: _____

Instructor: Cholak

9.(10 pts.) Find the area between the curves $y = 2 - x^2$ and $y = x$ bounded by the lines $x = 0$ and $x = 2$.

Name: _____

Instructor: Cholak

10.(10 pts.) Find the average value of $f(x) = \cos(x) + x$ from $x = 0$ to $x = 2\pi$.

Name: _____

Instructor: Cholak

11.(10 pts.)

a. Estimate the integral $\int_0^4 \frac{1}{\sqrt{25-x^2}} dx$ using the **trapezoidal** rule with $n = 4$.

b. Given that the fourth derivative of $\frac{1}{\sqrt{25-x^2}}$ is bounded in absolute value by 2.1 on the interval $[0, 4]$, give an upper bound for the error in using **Simpson's** rule with $n = 410$.

We are looking for formulas; in particular DO NOT attempt to evaluate the sums or do any arithmetic.

Name: _____

Instructor: Cholak

12.(10 pts.) Find the volume of the solid which lies betwen the planes $x = -1$ and $x = 1$. The cross sections perpendicular to the x–axis are squares whose diagonals run from $y = -(1 - x^2)$ to $y = (1 - x^2)$.

Name: _____

Instructor: Cholak

13.(10 pts.) Find the volume of the solid formed when the region bounded by the x-axis, the curve $y = \sqrt{\sin(x)}$ and $x = \pi$ is rotated around the x-axis.

Name: _____

Instructor: Taylor

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6.	(a)	(b)	(c)	(d)	(e)

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Total multiple choice: _____

7. _____

8. _____

9. _____

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11. _____

12. _____

13. _____

Total: _____

Name: _____

Instructor: Taylor

Multiple Choice

1.(5 pts.)

$$\int \big(x^2 + \sin(x)\big)dx =$$

(a) $\dfrac{x^3}{3} - \cos(x).$ (b) $\dfrac{x^3}{3} + \cos(x).$ (c) $\dfrac{x^3}{3} - \cos(x) + c.$

(d) $\dfrac{x^3}{3} + \cos(x) + c.$ (e) $2x + \sin(x) + c.$

2.(5 pts.) Suppose that $\displaystyle\int_{-1}^{2} f(x)\,dx = -2$ and $\displaystyle\int_{-1}^{5} f(x)\,dx = 7.$ Evaluate $\displaystyle\int_{2}^{5} 2\,f(x)\,dx.$ Be careful with the arithmetic.

(a) 5. (b) 9. (c) 10.

(d) 18. (e) Cannot be determined.

Name: _____

Instructor: Taylor

3.(5 pts.) Suppose that f is continuous on $[0, 10]$ and $\int_0^{10} f(x)dx = 50$. Which of the following must be true?

(a) There exists a c in $[0, 10]$ such that $f(c) = 5$.

(b) There exists exactly one c in $[0, 10]$ such that $f(c) = 5$.

(c) There exists exactly one c in $[0, 10]$ such that $f(c) = 10$.

(d) There exists a c in $[0, 10]$ such that $f(c) = 50$.

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4.(5 pts.) Evaluate $\int_0^{\sqrt{2}} \left(\sqrt{4 - x^2} - x\right) dx$ by interpreting it as an area that you know from elementary geometry.

(a) 0. (b) $\frac{\pi}{2}$. (c) π.

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Instructor: Taylor

5.(5 pts.) Find the derivative $\frac{dy}{dx}$ of the function $y = \int_{\pi}^{\sin(x)} t^2 dt$.

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$$\sum_{k=0}^{3}(2k+1) =$$

(a) $\int_0^3 (2x+1)\, dx$. (b) -14 (c) 10.

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Name: _____

Instructor: Taylor

Partial Credit

7.(10 pts.) Solve the initial value problem: $\frac{dy}{dx} = \sin^3(x)\cos(x)$;$y(\pi) = -3$.

Name: _____

Instructor: Taylor

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Instructor: Taylor

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Instructor: Taylor

11.(10 pts.)

a. Estimate the integral $\int_0^4 \frac{1}{\sqrt{25-x^2}}dx$ using the **trapezoidal** rule with $n = 4$.

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We are looking for formulas; in particular DO NOT attempt to evaluate the sums or do any arithmetic.

Name: _____

Instructor: Taylor

12.(10 pts.) Find the volume of the solid which lies betwen the planes $x = -1$ and $x = 1$. The cross sections perpendicular to the x–axis are squares whose diagonals run from $y = -(1 - x^2)$ to $y = (1 - x^2)$.

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Instructor: Taylor

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Instructor: Wong

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Total multiple choice: _____

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Total: _____

Name: _____

Instructor: Wong

Multiple Choice

1.(5 pts.)

$$\int \big(x^2 + \sin(x)\big)dx =$$

(a) $\dfrac{x^3}{3} - \cos(x).$ (b) $\dfrac{x^3}{3} + \cos(x).$ (c) $\dfrac{x^3}{3} - \cos(x) + c.$

(d) $\dfrac{x^3}{3} + \cos(x) + c.$ (e) $2x + \sin(x) + c.$

2.(5 pts.) Suppose that $\displaystyle\int_{-1}^{2} f(x)\,dx = -2$ and $\displaystyle\int_{-1}^{5} f(x)\,dx = 7.$ Evaluate $\displaystyle\int_{2}^{5} 2\,f(x)\,dx.$ Be careful with the arithmetic.

(a) 5. (b) 9. (c) 10.

(d) 18. (e) Cannot be determined.

Name: _____

Instructor: Wong

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(a) There exists a c in $[0, 10]$ such that $f(c) = 5$.

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(c) There exists exactly one c in $[0, 10]$ such that $f(c) = 10$.

(d) There exists a c in $[0, 10]$ such that $f(c) = 50$.

(e) There exists a c in $[0, 10]$ such that $f'(c) = 5$.

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Name: _____

Instructor: Wong

5.(5 pts.) Find the derivative $\dfrac{dy}{dx}$ of the function $y = \displaystyle\int_{\pi}^{\sin(x)} t^2 dt$.

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$$\sum_{k=0}^{3}(2k+1) =$$

(a) $\displaystyle\int_0^3 (2x+1)\, dx$. (b) -14 (c) 10.

(d) 16. (e) 20.

Name: _____

Instructor: Wong

Partial Credit

7.(10 pts.) Solve the initial value problem: $\frac{dy}{dx} = \sin^3(x)\cos(x)$;$y(\pi) = -3$.

Name: _____

Instructor: Wong

8.(10 pts.) Integrate $\int_0^1 x^3(x^4-1)^{10}dx$.

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Instructor: Wong

9.(10 pts.) Find the area between the curves $y = 2 - x^2$ and $y = x$ bounded by the lines $x = 0$ and $x = 2$.

Name: _____

Instructor: Wong

10.(10 pts.) Find the average value of $f(x) = \cos(x) + x$ from $x = 0$ to $x = 2\pi$.

Name: _____

Instructor: Wong

11.(10 pts.)

a. Estimate the integral $\int_0^4 \frac{1}{\sqrt{25-x^2}}dx$ using the **trapezoidal** rule with $n = 4$.

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Name: _____

Instructor: Wong

12.(10 pts.) Find the volume of the solid which lies betwen the planes $x = -1$ and $x = 1$. The cross sections perpendicular to the x–axis are squares whose diagonals run from $y = -(1 - x^2)$ to $y = (1 - x^2)$.

Name: _____

Instructor: Wong

13.(10 pts.) Find the volume of the solid formed when the region bounded by the x-axis, the curve $y = \sqrt{\sin(x)}$ and $x = \pi$ is rotated around the x-axis.

Name: _____

Instructor: Cao

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Total multiple choice: _____

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11. _____

12. _____

13. _____

Total: _____

Name: _____

Instructor: Cao

Multiple Choice

1.(5 pts.)

$$\int \big(x^2 + \sin(x)\big)dx =$$

(a) $\dfrac{x^3}{3} - \cos(x).$ (b) $\dfrac{x^3}{3} + \cos(x).$ (c) $\dfrac{x^3}{3} - \cos(x) + c.$

(d) $\dfrac{x^3}{3} + \cos(x) + c.$ (e) $2x + \sin(x) + c.$

2.(5 pts.) Suppose that $\displaystyle\int_{-1}^{2} f(x)\,dx = -2$ and $\displaystyle\int_{-1}^{5} f(x)\,dx = 7.$ Evaluate $\displaystyle\int_{2}^{5} 2\,f(x)\,dx.$ Be careful with the arithmetic.

(a) 5. (b) 9. (c) 10.

(d) 18. (e) Cannot be determined.

Name: _____

Instructor: Cao

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(a) There exists a c in $[0, 10]$ such that $f(c) = 5$.

(b) There exists exactly one c in $[0, 10]$ such that $f(c) = 5$.

(c) There exists exactly one c in $[0, 10]$ such that $f(c) = 10$.

(d) There exists a c in $[0, 10]$ such that $f(c) = 50$.

(e) There exists a c in $[0, 10]$ such that $f'(c) = 5$.

4.(5 pts.) Evaluate $\int_0^{\sqrt{2}} \left(\sqrt{4 - x^2} - x\right) dx$ by interpreting it as an area that you know from elementary geometry.

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Name: _____

Instructor: Cao

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$$\sum_{k=0}^{3}(2k+1) =$$

(a) $\int_0^3 (2x+1)\, dx$. (b) -14 (c) 10.

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Name: _____

Instructor: Cao

Partial Credit

7.(10 pts.) Solve the initial value problem: $\frac{dy}{dx} = \sin^3(x)\cos(x)$;$y(\pi) = -3$.

Name: _____

Instructor: Cao

8.(10 pts.) Integrate $\int_0^1 x^3(x^4-1)^{10}dx$.

Name: _____

Instructor: Cao

9.(10 pts.) Find the area between the curves $y = 2 - x^2$ and $y = x$ bounded by the lines $x = 0$ and $x = 2$.

Name: _____

Instructor: Cao

10.(10 pts.) Find the average value of $f(x) = \cos(x) + x$ from $x = 0$ to $x = 2\pi$.

Name: _____

Instructor: Cao

11.(10 pts.)

a. Estimate the integral $\int_0^4 \frac{1}{\sqrt{25-x^2}}dx$ using the **trapezoidal** rule with $n = 4$.

b. Given that the fourth derivative of $\frac{1}{\sqrt{25-x^2}}$ is bounded in absolute value by 2.1 on the interval $[0, 4]$, give an upper bound for the error in using **Simpson's** rule with $n = 410$.

We are looking for formulas; in particular DO NOT attempt to evaluate the sums or do any arithmetic.

Name: _____

Instructor: Cao

12.(10 pts.) Find the volume of the solid which lies betwen the planes $x = -1$ and $x = 1$. The cross sections perpendicular to the x–axis are squares whose diagonals run from $y = -(1 - x^2)$ to $y = (1 - x^2)$.

Name: _____

Instructor: Cao

13.(10 pts.) Find the volume of the solid formed when the region bounded by the x-axis, the curve $y = \sqrt{\sin(x)}$ and $x = \pi$ is rotated around the x-axis.

Name: _____

Instructor: Jarre

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4.	(a)	(b)	(c)	(d)	(e)
5.	(a)	(b)	(c)	(d)	(e)
6.	(a)	(b)	(c)	(d)	(e)

DO NOT WRITE IN THIS BOX!

Total multiple choice: _____

7. _____

8. _____

9. _____

10. _____

11. _____

12. _____

13. _____

Total: _____

Name: _____

Instructor: Jarre

Multiple Choice

1.(5 pts.)

$$\int \big(x^2 + \sin(x)\big)dx =$$

(a) $\dfrac{x^3}{3} - \cos(x).$ (b) $\dfrac{x^3}{3} + \cos(x).$ (c) $\dfrac{x^3}{3} - \cos(x) + c.$

(d) $\dfrac{x^3}{3} + \cos(x) + c.$ (e) $2x + \sin(x) + c.$

2.(5 pts.) Suppose that $\displaystyle\int_{-1}^{2} f(x)\,dx = -2$ and $\displaystyle\int_{-1}^{5} f(x)\,dx = 7.$ Evaluate $\displaystyle\int_{2}^{5} 2\,f(x)\,dx.$ Be careful with the arithmetic.

(a) 5. (b) 9. (c) 10.

(d) 18. (e) Cannot be determined.

Name: _____

Instructor: Jarre

3.(5 pts.) Suppose that f is continuous on $[0, 10]$ and $\int_0^{10} f(x)dx = 50$. Which of the following must be true?

(a) There exists a c in $[0, 10]$ such that $f(c) = 5$.

(b) There exists exactly one c in $[0, 10]$ such that $f(c) = 5$.

(c) There exists exactly one c in $[0, 10]$ such that $f(c) = 10$.

(d) There exists a c in $[0, 10]$ such that $f(c) = 50$.

(e) There exists a c in $[0, 10]$ such that $f'(c) = 5$.

4.(5 pts.) Evaluate $\int_0^{\sqrt{2}} \left(\sqrt{4 - x^2} - x\right) dx$ by interpreting it as an area that you know from elementary geometry.

(a) 0. (b) $\frac{\pi}{2}$. (c) π.

(d) 4π. (e) Cannot be determined.

Name: _____

Instructor: Jarre

5.(5 pts.) Find the derivative $\dfrac{dy}{dx}$ of the function $y = \displaystyle\int_{\pi}^{\sin(x)} t^2 dt$.

(a) $\pi x^2 \cos(x)$. (b) $2x \cos(x)$. (c) $t^2 \cos(t)$.

(d) $x^2 \sin(x)$. (e) $\sin^2(x) \cos(x)$.

6.(5 pts.)

$$\sum_{k=0}^{3}(2k+1) =$$

(a) $\displaystyle\int_0^3 (2x+1)\, dx$. (b) -14 (c) 10.

(d) 16. (e) 20.

Name: _____

Instructor: Jarre

Partial Credit

7.(10 pts.) Solve the initial value problem: $\frac{dy}{dx} = \sin^3(x)\cos(x)$;$y(\pi) = -3$.

Name: _____

Instructor: Jarre

8.(10 pts.) Integrate $\int_0^1 x^3(x^4-1)^{10}dx$.

Name: _____

Instructor: Jarre

9.(10 pts.) Find the area between the curves $y = 2 - x^2$ and $y = x$ bounded by the lines $x = 0$ and $x = 2$.

Name: _____

Instructor: Jarre

10.(10 pts.) Find the average value of $f(x) = \cos(x) + x$ from $x = 0$ to $x = 2\pi$.

Name: _____

Instructor: Jarre

11.(10 pts.)

a. Estimate the integral $\int_0^4 \frac{1}{\sqrt{25-x^2}}dx$ using the **trapezoidal** rule with $n = 4$.

b. Given that the fourth derivative of $\frac{1}{\sqrt{25-x^2}}$ is bounded in absolute value by 2.1 on the interval $[0, 4]$, give an upper bound for the error in using **Simpson's** rule with $n = 410$.

We are looking for formulas; in particular DO NOT attempt to evaluate the sums or do any arithmetic.

Name: _____

Instructor: Jarre

12.(10 pts.) Find the volume of the solid which lies betwen the planes $x = -1$ and $x = 1$. The cross sections perpendicular to the x–axis are squares whose diagonals run from $y = -(1 - x^2)$ to $y = (1 - x^2)$.

Name: _____

Instructor: Jarre

13.(10 pts.) Find the volume of the solid formed when the region bounded by the x-axis, the curve $y = \sqrt{\sin(x)}$ and $x = \pi$ is rotated around the x-axis.

Name: _____

Instructor: Nollet

Exam III
November 30, 1999

- The Honor Code is in effect for this examination. All work is to be your own.
- No calculators.
- The exam lasts for one hour.
- Be sure that your name is on every page in case pages become detached.
- Be sure that you have all 11 pages of the test.

Good Luck!

PLEASE MARK YOUR ANSWERS WITH AN X, not a circle!

1.	(a)	(b)	(c)	(d)	(e)
2.	(a)	(b)	(c)	(d)	(e)
3.	(a)	(b)	(c)	(d)	(e)
4.	(a)	(b)	(c)	(d)	(e)
5.	(a)	(b)	(c)	(d)	(e)
6.	(a)	(b)	(c)	(d)	(e)

DO NOT WRITE IN THIS BOX!

Total multiple choice: _____

7. _____

8. _____

9. _____

10. _____

11. _____

12. _____

13. _____

Total: _____

Name: _____

Instructor: Nollet

Multiple Choice

1.(5 pts.)

$$\int \big(x^2 + \sin(x)\big)dx =$$

(a) $\dfrac{x^3}{3} - \cos(x).$ (b) $\dfrac{x^3}{3} + \cos(x).$ (c) $\dfrac{x^3}{3} - \cos(x) + c.$

(d) $\dfrac{x^3}{3} + \cos(x) + c.$ (e) $2x + \sin(x) + c.$

2.(5 pts.) Suppose that $\displaystyle\int_{-1}^{2} f(x)\,dx = -2$ and $\displaystyle\int_{-1}^{5} f(x)\,dx = 7.$ Evaluate $\displaystyle\int_{2}^{5} 2\,f(x)\,dx.$ Be careful with the arithmetic.

(a) 5. (b) 9. (c) 10.

(d) 18. (e) Cannot be determined.

Name: _____

Instructor: Nollet

3.(5 pts.) Suppose that f is continuous on $[0, 10]$ and $\int_0^{10} f(x)dx = 50$. Which of the following must be true?

(a) There exists a c in $[0, 10]$ such that $f(c) = 5$.

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(d) There exists a c in $[0, 10]$ such that $f(c) = 50$.

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Name: _____

Instructor: Nollet

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6.(5 pts.)

$$\sum_{k=0}^{3} (2k+1) =$$

(a) $\displaystyle\int_0^3 (2x+1)\, dx$. (b) -14 (c) 10.

(d) 16. (e) 20.

Name: _____

Instructor: Nollet

Partial Credit

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Name: _____

Instructor: Nollet

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Name: _____

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Name: _____

Instructor: Nollet

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Name: _____

Instructor: Nollet

11.(10 pts.)

a. Estimate the integral $\int_0^4 \frac{1}{\sqrt{25-x^2}}dx$ using the **trapezoidal** rule with $n = 4$.

b. Given that the fourth derivative of $\frac{1}{\sqrt{25-x^2}}$ is bounded in absolute value by 2.1 on the interval $[0, 4]$, give an upper bound for the error in using **Simpson's** rule with $n = 410$.

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Name: _____

Instructor: Nollet

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Name: _____

Instructor: Nollet

13.(10 pts.) Find the volume of the solid formed when the region bounded by the x-axis, the curve $y = \sqrt{\sin(x)}$ and $x = \pi$ is rotated around the x-axis.

Name: _____

Instructo: Bullwinkle

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November 30, 1999

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4.	(a)	(•)	(c)	(d)	(e)
5.	(a)	(b)	(c)	(d)	(•)
6.	(a)	(b)	(c)	(•)	(e)

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Total multiple choice: _____

7. _____

8. _____

9. _____

10. _____

11. _____

12. _____

13. _____

Total: _____