



Multiple Integrals

Chapter: Multivariable Calculus • Level ★★★ •
Time: 30 min

SCORE

___ / 20

Name _____ Class _____ Date _____

AFTER THIS WORKSHEET YOU CAN

- ✓ Evaluate double integrals over rectangular regions.
- ✓ Integrate one variable at a time as an iterated integral.
- ✓ Interpret a double integral as volume under a surface.
- ✓ Choose a convenient order of integration.



Section A • Concept Check

• BEGINNER

$4 \times 1 = 4$

1 $\iint xy \, dA$ over $[0,1] \times [0,1] = ?$

- ☐ A. 1 ☐ B. 1/2 ☐ C. 1/4 ☐ D. 1/8

2 $\iint 3 \, dA$ over $[0,4] \times [0,2] = ?$

- ☐ A. 6 ☐ B. 12 ☐ C. 24 ☐ D. 8

3 A double integral over a rectangle is evaluated as an ___ integral:

- ☐ A. single ☐ B. iterated ☐ C. improper
☐ D. line

4 $\iint x^2 \, dA$ over $[0,2] \times [0,3] = ?$

- ☐ A. 4 ☐ B. 8 ☐ C. 24 ☐ D. 12



Section B • Problem Solving

• INTERMEDIATE

$2 + 3 \times 3 = 11$

5 A double integral is evaluated as an _____ integral.

6 $\iint xy \, dA$ over $[0,1] \times [0,1] =$ _____

7 Evaluate $\iint xy \, dA$ over $[0,1] \times [0,1]$.8 Evaluate $\iint 3 \, dA$ over $[0,4] \times [0,2]$.9 Evaluate $\iint x^2 \, dA$ over $[0,2] \times [0,3]$.

Section C • Challenge

• CHALLENGE

5

10 Evaluate $\iint (x + y) \, dA$ over $[0,2] \times [0,2]$.

Reflection — the most useful thing I learned: _____

A ___/4 B ___/11 C ___/5 Total ___/20

Teacher's Signature

Parent's Signature

ANSWER KEY — FOLD OR CUT BEFORE HANDING OUT

1-C 2-C 3-B 4-B | 5 iterated 6 1/4 7 = 1/4 8 = 24 9 = 8 | 10 = 8