



Area Under Curve

Name _____ Class _____ Date _____

AFTER THIS WORKSHEET YOU CAN

- ✓ Compute the area under a curve using a definite integral.
- ✓ Find the area between two curves.
- ✓ Choose correct limits and identify the top function.
- ✓ Interpret area as an accumulated quantity.

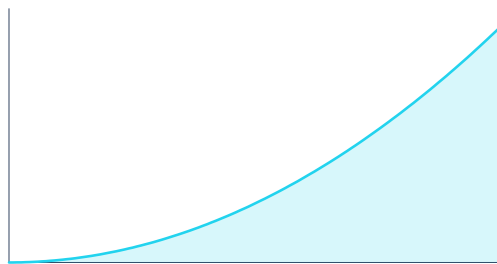


Section A • Concept Check

• BEGINNER

$4 \times 1 = 4$

- 1 Area under $f(x) = x^2$ from 0 to 4 = ?
☐ A. 16 ☐ B. $64/3$ ☐ C. $32/3$ ☐ D. 64
- 2 Area under $f(x) = 3x$ from 0 to 2 = ?
☐ A. 3 ☐ B. 6 ☐ C. 12 ☐ D. 9
- 3 Area between two curves = ?
☐ A. $\int(\text{top} - \text{bottom}) dx$ ☐ B. $\int(\text{bottom} - \text{top}) dx$
☐ C. $\int(\text{top} \cdot \text{bottom}) dx$ ☐ D. $\int(\text{top} + \text{bottom}) dx$
- 4 Area under $f(x) = x^3$ from 0 to 2 = ?
☐ A. 2 ☐ B. 4 ☐ C. 8 ☐ D. 16



Section B • Problem Solving

• INTERMEDIATE

$2 + 3 \times 3 = 11$

- 5 Area under a curve is computed with a _____ integral.
- 6 Area between curves = $\int(\text{_____} - \text{bottom}) dx$.
- 7 Find the area under $f(x) = x^2$ from $x = 0$ to $x = 4$.

- 8 Find the area under $f(x) = 3x$ from $x = 0$ to $x = 2$.

- 9 Find the area between $f(x) = x + 3$ and $g(x) = x^2$ from $x = -1$ to $x = 2$.



Section C • Challenge

• CHALLENGE

5

- 10 Find the area under $f(x) = x^3$ from $x = 0$ to $x = 2$.

🌸 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-B 2-B 3-A 4-B | 5 definite 6 top 7 = $64/3$ 8 = 6 9 = $9/2$ | 10 = 4