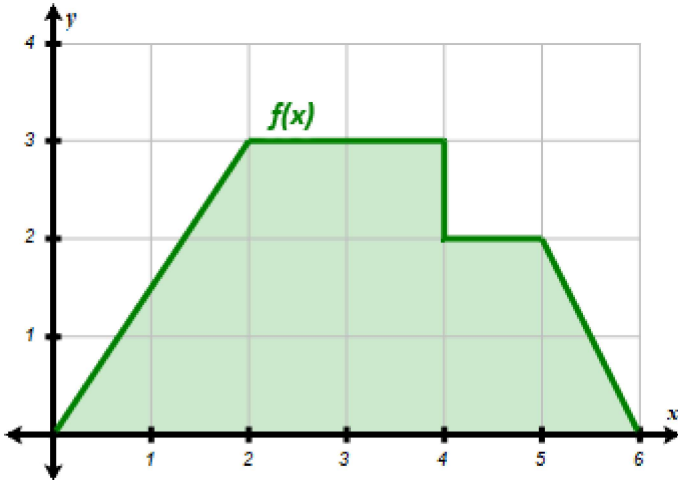


### 04-03-Area Approximation

#### Multiple Choice

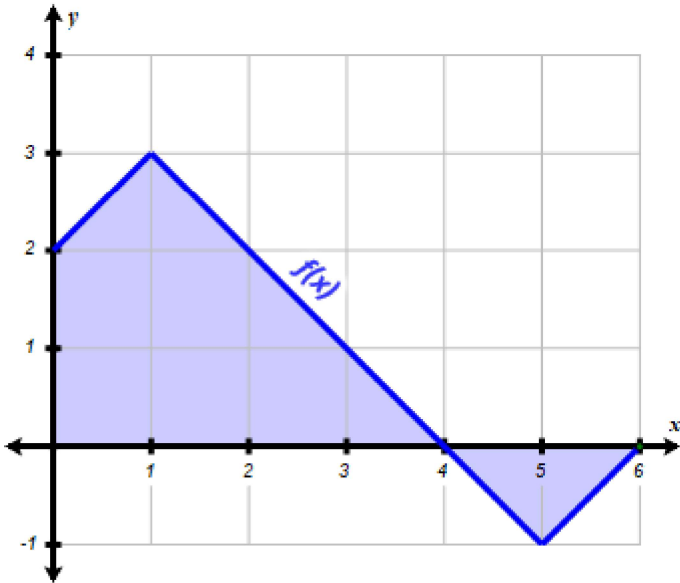
Identify the choice that best completes the statement or answers the question.

\_\_\_\_ 1. Given the graph of  $f(x)$ , determine the value of  $\int_0^6 f(x) dx$



- |      |       |
|------|-------|
| a. 2 | d. 10 |
| b. 4 | e. 12 |
| c. 8 | f. 14 |

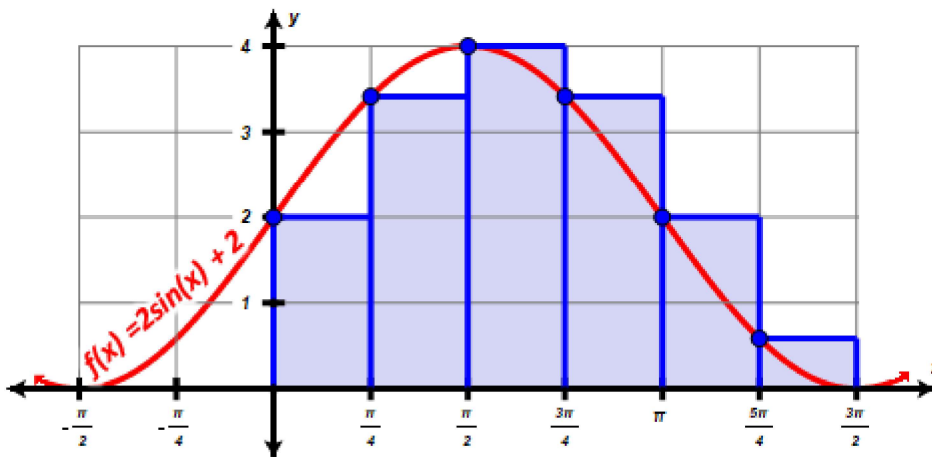
\_\_\_\_\_ 2. Given the graph of  $f(x)$ , determine the value of  $\int_0^6 f(x) dx$



- |      |       |
|------|-------|
| a. 2 | d. 8  |
| b. 4 | e. 10 |
| c. 6 | f. 12 |

\_\_\_\_\_ 3.

Use **left-hand endpoints** with  $n = 6$  equal width rectangles to approximate  $\int_0^{1.5\pi} (2 \sin(x) + 2) dx$ .

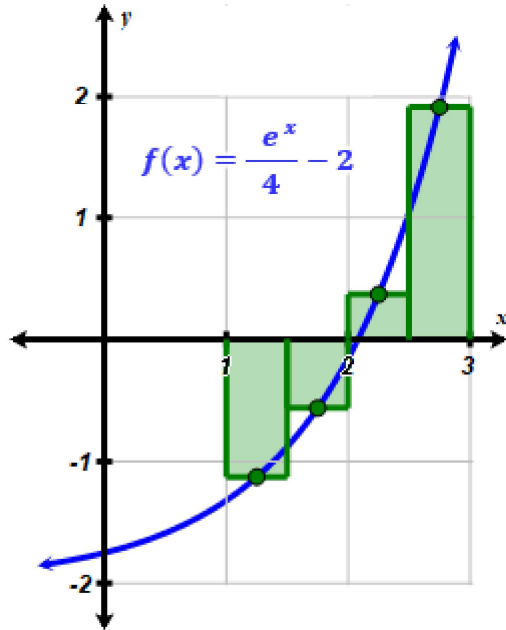


Which of the below choices would best represent the estimate?

- |           |                          |
|-----------|--------------------------|
| a. 10.535 | d. 12.916                |
| b. 11.425 | e. 15.414                |
| c. 12.106 | f. None of These Choices |

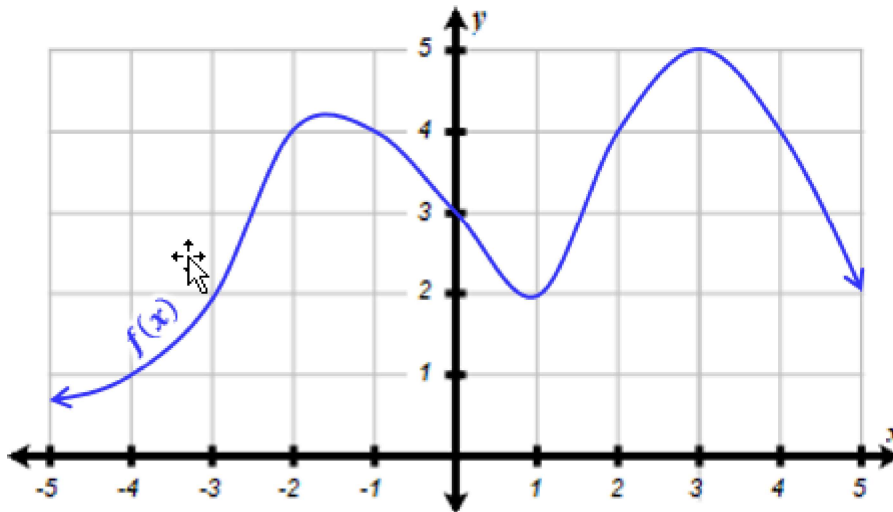
4. Use **midpoints** with  $n = 4$  equal width rectangles to approximate  $\int_1^3 \left( \frac{e^x}{4} - 2 \right) dx$ .

Which of the below choices would best represent the estimate?



- |            |                          |
|------------|--------------------------|
| a. -0.6536 | d. 1.5173                |
| b. 0.2969  | e. 1.9857                |
| c. 0.3418  | f. None of These Choices |

5. Use the graph below. Estimate  $\int_{-4}^4 f(x) dx$  with 4 equal subintervals using **right-hand** endpoints



- |       |                          |
|-------|--------------------------|
| a. 22 | d. 30                    |
| b. 24 | e. None of These Choices |
| c. 26 |                          |



**04-03-Area Approximation  
Answer Section****MULTIPLE CHOICE**

- |           |        |                         |
|-----------|--------|-------------------------|
| 1. ANS: E | PTS: 1 |                         |
| 2. ANS: C | PTS: 1 |                         |
| 3. ANS: C | PTS: 1 | DIF: Matt's Math Labs © |
| 4. ANS: B | PTS: 1 | DIF: Matt's Math Labs © |
| 5. ANS: D | PTS: 1 | REF: Matt's Math Labs © |
| 6. ANS: D | PTS: 1 | REF: GSU Calculus       |
| 7. ANS: B | PTS: 1 | DIF: Matt's Math Labs © |
| 8. ANS: A | PTS: 1 | REF: Matt's Math Labs © |