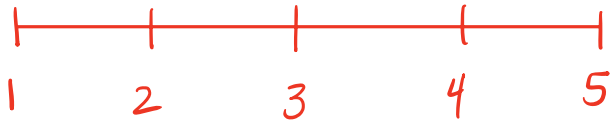
Name: Key **Date** _____

Instructions: For each question, neatly write a solution and circle your answer.

1. For the function $f(x) = 3x - 2$ on the interval $[1, 5]$, use a Riemann sum with 4 rectangles to find the left-endpoint approximation for the area underneath the graph of $f(x)$. What is the value of this left-endpoint approximation?



$f(1) = 1$

$f(2) = 4$

$f(3) = 7$

$f(4) = 10$

$A = 1[1+4+7+10] = \boxed{22}$

2. Let $f(x)$ be a continuous function such that $\int_3^7 f(x)\mathrm{d}x = 7$ and $\int_{-2}^7 f(x)\mathrm{d}x = 12$. What is the value of $\int_{-2}^3 f(x)\mathrm{d}x$?

$$\int_{-2}^{7} f(x)\,dx = \int_{-2}^{3} f(x)\,dx + \int_{3}^{7} f(x)\,dx$$

$$12 = \int_{-2}^{3} f(x)\,dx + 7$$

$$\int_{-2}^{3} f(x)\,dx = \boxed{5}$$