Instructions: Show work and put a box around your final answer.

1. \[ \sum_{k=1}^{5} (3 + 2k) = \]

2. Suppose that \( f(x) \) is a function for which \( \int_{1}^{5} f(x) \, dx = 3 \) and \( \int_{1}^{7} f(x) \, dx = -6 \). Find \( \int_{5}^{7} f(x) \, dx \).

3. Write the integral that finds area under the curve \( y = \sin^2(x) \) from \( x = 0 \) to \( x = \pi \). Do not compute the integral.

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1. \[ \sum_{k=1}^{4} (8 - 2k) = \]

2. Suppose that \( f(x) \) is a function for which \( \int_{2}^{5} f(x) \, dx = 4 \) and \( \int_{2}^{8} f(x) \, dx = 9 \). Find \( \int_{5}^{8} f(x) \, dx \).

3. Write the definite integral that finds area under the curve \( y = e^x + 2x \) from \( x = 1 \) to \( x = 4 \). Do not compute the integral.
1. \[ \sum_{k=1}^{4} (2k - 4) = \]

2. Suppose that \( f(x) \) is a function for which \( \int_{2}^{5} f(x) \, dx = 7 \) and \( \int_{2}^{8} f(x) \, dx = 8 \). Find \( \int_{5}^{8} f(x) \, dx \).

3. Write the definite integral that finds area under the curve \( y = \sqrt{\sin(x)} \) from \( x = 0 \) to \( x = \pi \). Do not compute the integral.