2. (5 points) Suppose
$$\int_{4}^{9} (4f(x) + 7)dx = 315$$
. Find $\int_{4}^{9} f(x)dx$.

$$\int_{4}^{9} 4f(x)dx + \int_{4}^{9} 7dx = 315$$
$$4\int_{4}^{9} f(x)dx + 35 = 315$$
$$4\int_{4}^{9} f(x)dx = 280$$
$$\int_{4}^{9} f(x)dx = 70$$

3. (5 points) Use the Fundamental Theorem to determine the positive value of b if the area under the graph of f(x) = 4x + 1 between x = 2 and x = b is equal to 11.

$$\int_{2}^{b} (4x+1)dx = 11$$

$$\frac{4x^{2}}{2}|_{2}^{b} + x|_{2}^{b} = 11$$

$$(2b^{2} - 8) + (b - 2) = 11$$

$$2b^{2} + b - 21 = 0$$

$$(2b + 7)(b - 3) = 0$$

$$b = \frac{-7}{2}, 3$$

Since b is positive, b = 3.