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.

$$\int_2^b (4x+1)dx = 11$$

$$\frac{4x^2}{2}\big|_2^b + x\big|_2^b = 11$$

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

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

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

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

Since b is positive, $b = 3$.