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.

\[
\int_{2}^{b} (4x + 1)dx = 11
\]
\[\frac{4x^2}{2}\bigg|_{2}^{b} + x\bigg|_{2}^{b} = 11\]
\[(2b^2 - 8) + (b - 2) = 11\]
\[2b^2 + b - 21 = 0\]
\[(2b + 7)(b - 3) = 0\]
\[b = \frac{-7}{2}, 3\]
Since $b$ is positive, $b = 3$. 