59. **SSM** ***REASONING AND SOLUTION*** Let the speed of the air below and above the wing be given by v_1 and v_2, respectively. According to Equation 11.12, the form of Bernoulli's equation with $y_1 = y_2$, we have

$$P_1 - P_2 = \tfrac{1}{2}\rho\left(v_2^2 - v_1^2\right) = \frac{1.29\ \text{kg/m}^3}{2}\left[(251\ \text{m/s})^2 - (225\ \text{m/s})^2\right] = 7.98\times10^3\ \text{Pa}$$

From Equation 11.3, the lifting force is, therefore,

$$F = \left(P_1 - P_2\right)A = (7.98\times10^3\ \text{Pa})(24.0\ \text{m}^2) = \boxed{1.92\times10^5\ \text{N}}$$