Exercise 1 *Find*

$$\lim_{x \to 3} f(x) = \boxed{9}.$$

given, on the interval $[0, 5]$*, that* $6x - 9 \leq f(x) \leq x^2$*.*

Hint: *Use the Squeeze Theorem on the two bounds for* $f(x)$*. Observe that* $\lim_{x \to 3} (6x - 9) = 6 \cdot \lim_{x \to 3}(x) - \lim_{x \to 3}(9) = 9$ *and* $\lim_{x \to 3} \left(x^2\right) = \left(\lim_{x \to 3}(x)\right)^2 = 9$*.*

Hint: *Since we are given that* $6x - 9 \leq f(x) \leq x^2$ *on* $[0, 5]$*, and we have seen that* $\lim_{x \to 3} (6x - 3) = \lim_{x \to 3} \left(x^2\right) = 9$*, it follows by the Squeeze Theorem that* $\lim_{x \to 3} f(x) = 9$*.*