Exercise 1 *Find*

$$\lim_{x \to 1} f(x) = \boxed{1}.$$

given that $3x - 2 \leq f(x) \leq x^3$.

Hint: *Use the Squeeze Theorem on the two bounds for* $f(x)$. *Observe that* $\lim_{x \to 1} (3x - 2) = 3 \cdot \lim_{x \to 1}(x) - \lim_{x \to 1}(2) = 1$ *and* $\lim_{x \to 1} \left(x^3\right) = \left(\lim_{x \to 1}(x)\right)^3 = 1$.

Hint: *Since we are given that* $3x - 2 \leq f(x) \leq x^3$, *and we have seen that* $\lim_{x \to 1} (3x - 2) = \lim_{x \to 1} \left(x^3\right) = 1$, *it follows by the Squeeze Theorem that* $\lim_{x \to 1} f(x) = 1$.