

3. (10 points) For $f(x) = x^2$, find the average rate of change.

(1) x changes from 1 to 3

(2) x changes from 1 to 2

4. (20 points) Use the Theorem of Limits to find the limits.

(1) $\lim_{x \rightarrow 2} x^4 - 2x^2 - 7$

(2) $\lim_{x \rightarrow 0} \sqrt{x^3 + 3x^2 - 5x + 2}$

(3) $\lim_{x \rightarrow 25} \frac{\sqrt{x}-5}{x-25}$

(4) $\lim_{x \rightarrow -1} \frac{x^2+5x+4}{x^2+2x+1}$