

PROBLEMS: PART 1

1. A function f is defined on the interval $[0, 1]$ by $f(x) = x^2 + 2x - 1$. Find the maximum and minimum values of f on this interval.

2. A function f is defined on the interval $[0, 1]$ by $f(x) = x^3 - 3x^2 + 2x$. Find the maximum and minimum values of f on this interval.

3. A function f is defined on the interval $[0, 1]$ by $f(x) = x^4 - 2x^3 + x^2$. Find the maximum and minimum values of f on this interval.



4. A function f is defined on the interval $[0, 1]$ by $f(x) = x^5 - 5x^4 + 10x^3 - 10x^2 + 5x$. Find the maximum and minimum values of f on this interval.



5. A function f is defined on the interval $[0, 1]$ by $f(x) = x^6 - 6x^5 + 15x^4 - 20x^3 + 15x^2 - 6x$. Find the maximum and minimum values of f on this interval.

6. A function f is defined on the interval $[0, 1]$ by $f(x) = x^7 - 7x^6 + 21x^5 - 35x^4 + 35x^3 - 21x^2 + 7x$. Find the maximum and minimum values of f on this interval.

7. A function f is defined on the interval $[0, 1]$ by $f(x) = x^8 - 8x^7 + 28x^6 - 56x^5 + 56x^4 - 28x^3 + 8x^2 - x$. Find the maximum and minimum values of f on this interval.

8. A function f is defined on the interval $[0, 1]$ by $f(x) = x^9 - 9x^8 + 36x^7 - 84x^6 + 126x^5 - 126x^4 + 84x^3 - 36x^2 + 9x$. Find the maximum and minimum values of f on this interval.

9. A function f is defined on the interval $[0, 1]$ by $f(x) = x^{10} - 10x^9 + 45x^8 - 120x^7 + 210x^6 - 252x^5 + 210x^4 - 120x^3 + 45x^2 - 10x$. Find the maximum and minimum values of f on this interval.