

MCS22 Homework 2

Find the coordinates of all relative and absolute extrema.

1. $f(x) = x - x^2$ $[0, 1]$

2. $f(x) = x - x^3$ $[0, 1]$

3. $f(x) = x - x^3$ $(-\infty, \infty)$

4. $f(x) = x^3 - 6x$ $[0, 2]$

5. $f(x) = \frac{1}{x-2}$ $(1, 3)$

6. $f(x) = x^4 - 2x^2 + 2$ $[0, 1]$

7. $f(x) = \sqrt{x} - x$ $[0, \infty)$

8. $f(x) = x - \sin x$ $[0, \frac{\pi}{2}]$

9. $f(x) = \cos^2 x + \sin x$ $[0, \pi]$

10. $f(x) = 2 \sin x + \sin 2x$ $[0, 2\pi]$