

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