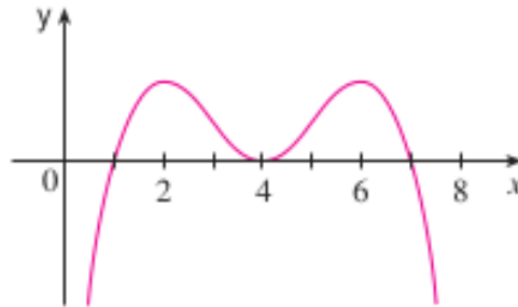


1. The graph of the function $f(x)$ on the interval $[0, 8]$ is given below. Prepare a table showcasing:



- Intervals of positivity/negativity for f' .
 - Intervals of positivity/negativity for f'' .
 - Intervals of increasing/decreasing for f .
 - Intervals of concavity for f .
 - Points of local min/max for f .
 - Inflection points for f .
2. For the given function f , (i) Find the intervals on which f is increasing or decreasing. (ii) Find the local maximum and minimum values of f . (iii) Find the intervals of concavity and the inflection points.
- (a) $f(x) = 2x^3 + 3x^2 - 36x$
 - (b) $f(x) = x^4 - 2x^2 + 3$
 - (c) $\sin(x) + \cos(x)$, $x \in [0, s\pi]$
3. For the given function f , (i) Find the intervals of increase or decrease. (ii) Find the local maximum and minimum values. (iii) Find the intervals of concavity and the inflection points. (iv) Use the information from parts (i)–(iii) to sketch the graph.
- (a) $f(x) = x^3 - 12x + 2$

(b) $f(x) = (x + 1)^5 - 5x - 2$

(c) $f(x) = x\sqrt{6 - x}$

(d) $f(x) = x^{1/3}(x + 4)$

(e) $f(x) = x - \sin x, \quad x \in [0, 4\pi]$