**Example: Given f(x)= x4-6x2+8x + 8.**

f’(x) = 4x3-12x+8, Critical Numbers :-2,1

f’’(x)=12x-12 Possible point of inflection -1,1

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Intervals | f(x) | f’(x) | f’’(x) | Remarks |
| (-∞,-2) |  | - | + | f is decreasing and concave upward |
| x=-2 | -16 | 0 | + | Has a relative minimum and concave upward |
| (-2,-1) |  | + | + | f is increasing and concave upward |
| x=-1 | -5 | + | 0 | f is increasing and has a point of inflection |
| (-1,1) |  | + | - | f is increasing and concave downward |
| x=1 | 11 | 0 | 0 | has a point of inflection |
| (1,+∞) |  | + | + | f is increasing and concave upward |

