For full credit you must show your work. Partial credit may be given for incorrect solutions if sufficient work is shown.

Do not use a graph to justify your answers!

For the function $f(x) = x^3 + 12x^2 + 45x$, find

1. the interval(s) where f is concave/up down (4 pts)

2. point(s) of inflection [Hint: you did all the work in part #1] (2 pts)

3. the absolute maximum and minimum on [-4, 4] (4 pts)