CONCAVITY AND INFLECTION POINT EXERCISES

For each problem below, identify the intervals over which the function is concave up and the intervals over which the function is concave down. Also give the coordinates of any inflections points. In problem 3, give your answers in decimal form rounded to 3 decimal places. In all other problems, give exact answers in fraction form.

1. $f(x) = -x^2 - 2x + 8$

2. $f(x) = x^2 - 6x + 1$

3. $f(x) = x^4 - 5x^2 + 1$

4. $f(x) = x^3$

5. $f(x) = x^3 - x^2 - x - 1$