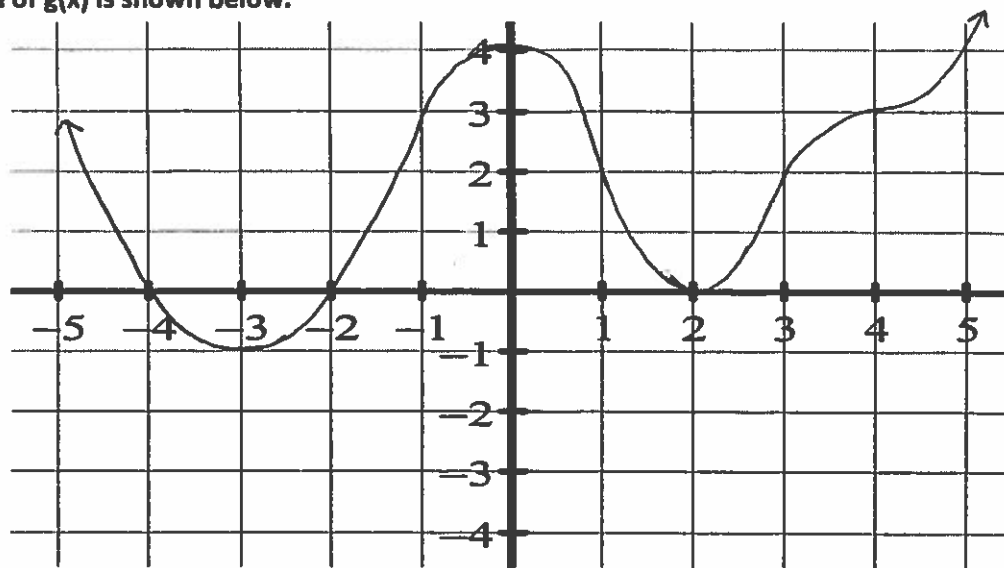# 3.6 Summary of Curve Sketching

1) The graph of g(x) is shown below.

Increasing: $(-3, 0) \cup (2, \infty)$

Decreasing: $(-\infty, -3) \cup (0, 2)$

Critical points: $x = -3$ $x = 0$ $x = 2$ $x = 4$
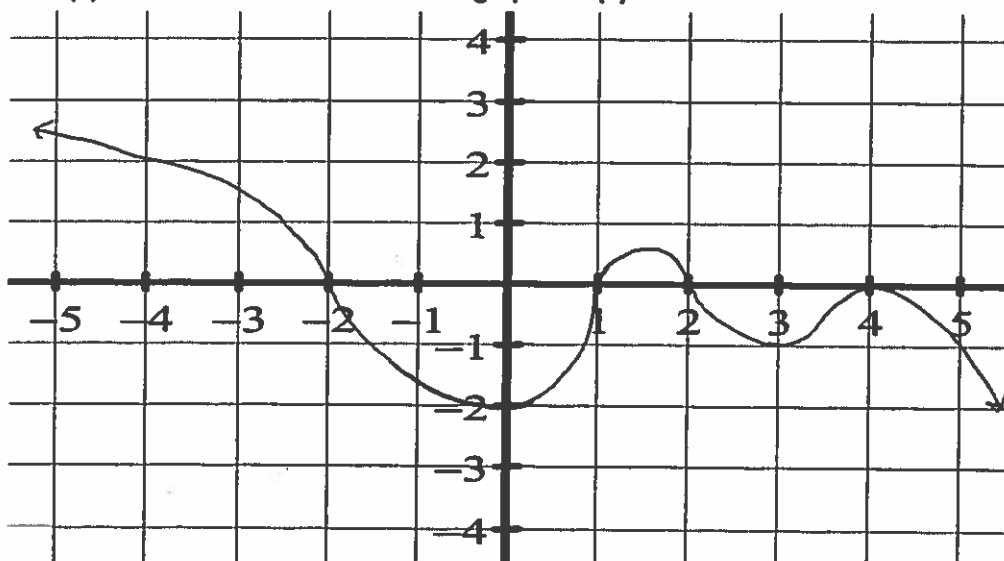
Relative maximum(s): $x = 0$

Concave up: $(-\infty, -1) \cup (1, 3) \cup (4, \infty)$

Concave down: $(-1, 1) \cup (3, 4)$

Points of inflection: $x = -1$ $x = 1$ $x = 3$ $x = 4$

Relative minimum(s): $x = -3$ $x = 2$

2) The graph of h'(x) is shown below. Describe the graph of h(x).

Increasing: $(-\infty, -2) \cup (1, 2)$

Decreasing: $(-2, 1) \cup (2, 4) \cup (4, \infty)$

Critical points: $x = -2$ $x = 1$ $x = 2$ $x = 4$
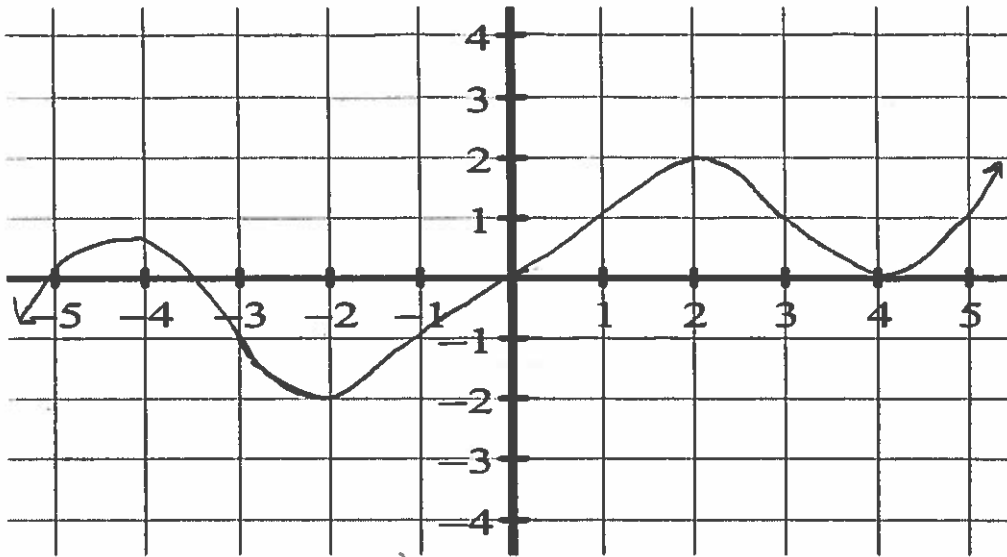
Relative maximum(s): $x = -2$ $x = 2$

Concave up: $(0, 1.5) \cup (3, 4)$

Concave down: $(-\infty, 0) \cup (1.5, 3) \cup (4, \infty)$

Points of inflection: $x = 0$ $x = 1.5$ $x = 3$ $x = 4$

Relative minimum(s): $x = 1$

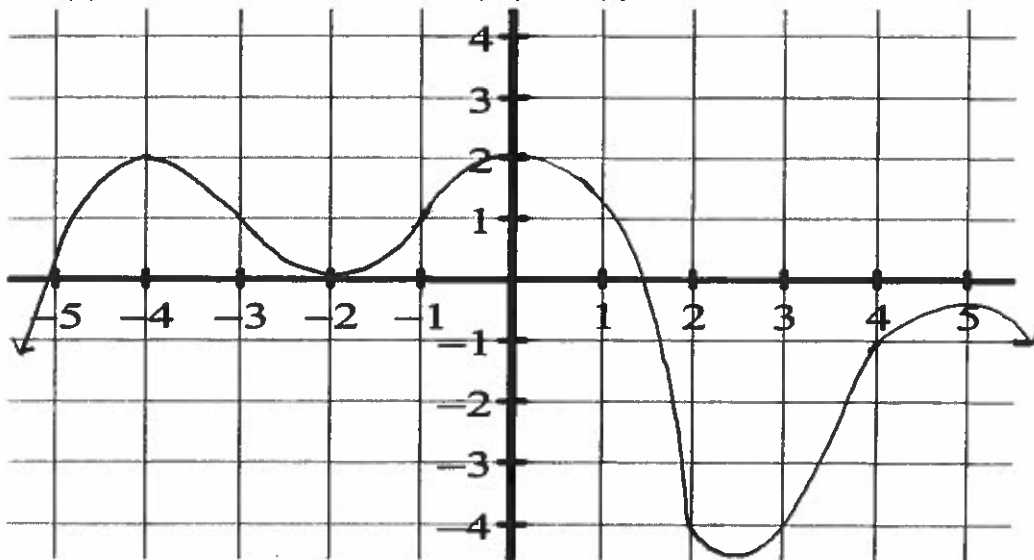**3) The graph of j''(x) is shown below. Describe the graph of j(x).**

Concave up: $(-5, -3.5) \cup (0, 4) \cup (4, \infty)$

Concave down: $(-\infty, -5) \cup (-3.5, 0)$

Points of inflection: $X = -5 \quad X = 0$

4) The graph of k'(x) is shown below. Describe the graph of k(x).

Increasing: $(-5, -2) \cup (-2, 1.5)$

Decreasing: $(-\infty, -5) \cup (1.5, \infty)$

Critical points: $X = -5 \quad X = -2 \quad X = 1.5$

Relative maximum(s): $X = 1.5$

Concave up: $(-\infty, -4) \cup (-2, 0) \cup (2.5, 5)$

Concave down: $(-4, -2) \cup (0, 2.5) \cup (5, \infty)$

Points of inflection: $X = -4 \quad X = -2 \quad X = 0 \quad X = 2.5 \quad X = 5$

Relative minimum(s): $X = -5$