

AUTHOR 1 _____ ☐ ☐

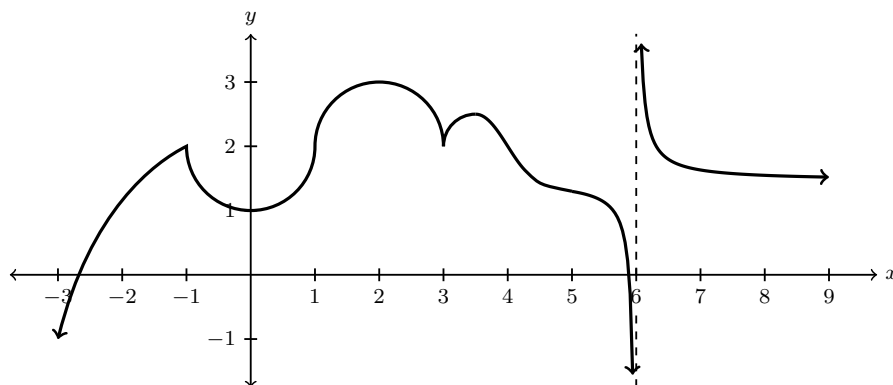
AUTHOR 2 _____ ☐ ☐

AUTHOR 3 _____ ☐ ☐

AUTHOR 4 _____ ☐ ☐

Group Work 17

1. The graph of $f(x)$ is below.



(a) On what intervals is f increasing?

(d) On what intervals is f concave up?

(b) On what intervals is f decreasing?

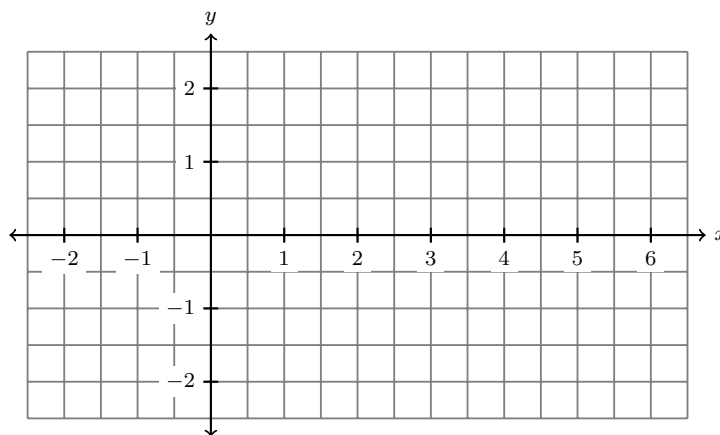
(e) On what intervals is f concave down?

(c) For which x -values is there a local extrema?

(f) For which x -values is there an inflection point?

2. Draw the graph of a function f that has the given properties:

- f is continuous everywhere except at $x = 4$
- $f'(x) < 0$ **only** when $3 < x < 4$,
- $f''(x) > 0$ **only** when $0 < x < 2$
- $\lim_{x \rightarrow \infty} f(x) = 1$



(a) For which x -values is there a local extrema?

(b) For which x -values is there an inflection point?

3. Let $f(x) = x^4 e^{-x}$. Find all intervals of increasing or decreasing, all intervals where the graph is concave up or concave down, all local extrema, and all inflections points. (Your answers go below.) *Also, use this information to sketch the graph of $y = f(x)$.*

- On what intervals is f increasing?
- On what intervals is f decreasing?
- For which x -values is there a local extrema?
- On what intervals is f concave up?
- On what intervals is f concave down?
- For which x -values is there an inflection point?

