

Criteria Graphing

Sketch a graph of the function from the given information.

1.

f is continuous.

$$f(-9) = 4, \quad f(-4) = 5, \quad f(-2) = 2, \quad f(0) = 4, \quad f(-6) = 7$$

$$f'(-6) = f'(-2) = 0$$

$$f'(x) > 0 \text{ for } (-\infty, -6] \cup [-2, \infty)$$

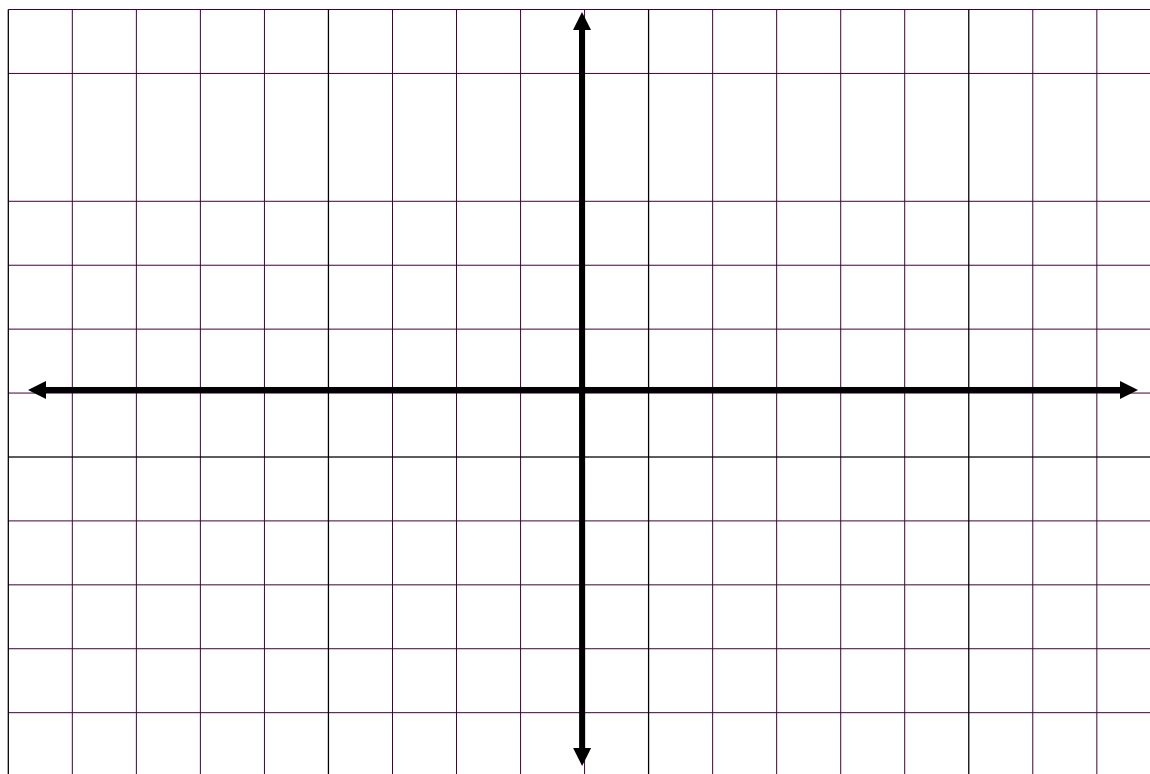
$$f'(x) < 0 \text{ for } [-6, -2]$$

$$f''(-9) = f''(-4) = f''(0) = 0$$

$$f''(x) > 0 \text{ for } (-\infty, -9) \cup (-4, 0)$$

$$f''(x) < 0 \text{ for } (-9, -4) \cup (0, \infty)$$

$$\lim_{x \rightarrow -\infty} f(x) = -1, \quad \lim_{x \rightarrow \infty} f(x) = 6$$



State the extrema values and their type.

2.

$$f(-4) = 6, \quad f(5) = 2$$

$$f'(-4) = 0$$

$$f'(x) > 0 \text{ for } (-\infty, -4] \cup (2, \infty)$$

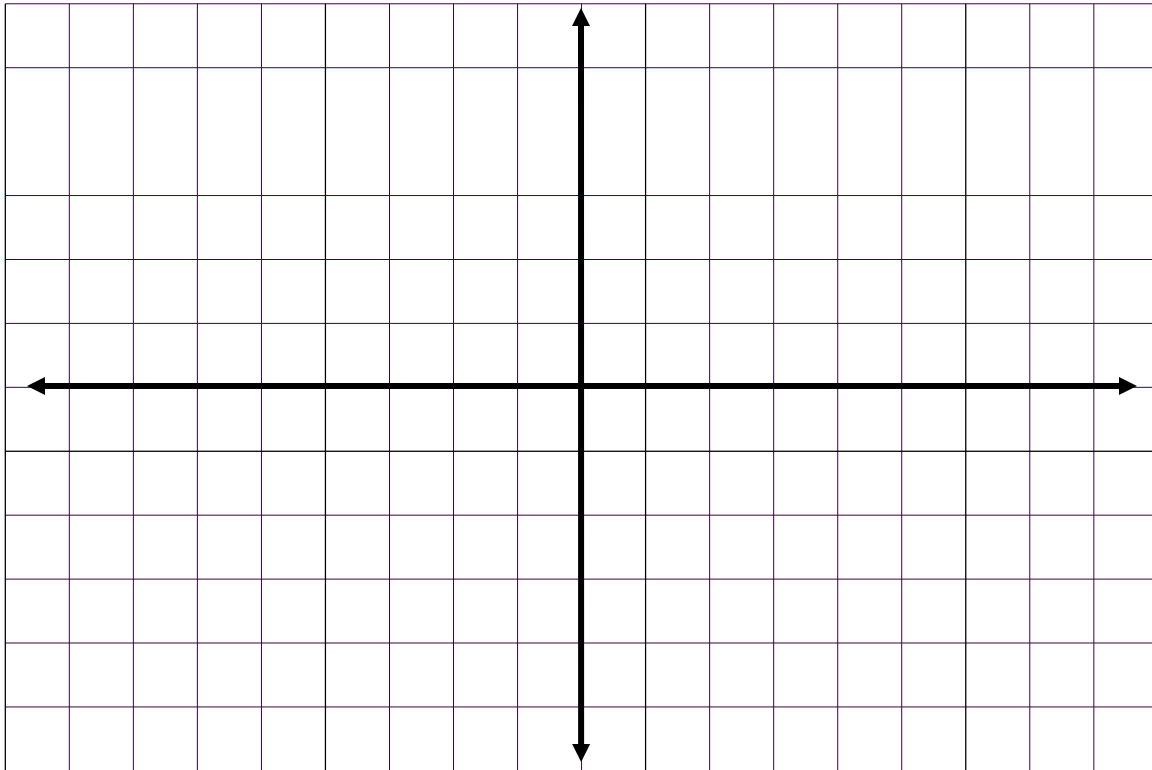
$$f'(x) < 0 \text{ for } [-4, 2)$$

$$f''(-7) = f''(-2) = 0$$

$$f''(x) > 0 \text{ for } (-\infty, -7) \cup (-2, 0)$$

$$f''(x) < 0 \text{ for } (-7, -2) \cup (0, 2) \cup (2, \infty)$$

$$\lim_{x \rightarrow -\infty} f(x) = 1, \quad \lim_{x \rightarrow \infty} f(x) = 3, \quad \lim_{x \rightarrow 2^+} f(x) = -\infty, \quad \lim_{x \rightarrow 2^-} f(x) = -\infty$$



State the extrema values and their type.