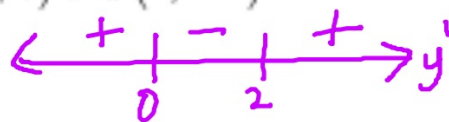


More Curve Sketching

Sketch a curve that satisfies the following conditions:

$$\frac{dy}{dx} > 0 \text{ on } (-\infty, 0) \text{ and } (2, +\infty)$$

$$\frac{dy}{dx} < 0 \text{ on } (0, 2)$$



$$\frac{d^2y}{dx^2} > 0 \text{ on } (1, +\infty)$$

$$\frac{d^2y}{dx^2} < 0 \text{ on } (-\infty, 1)$$



$$f(0) = 4$$

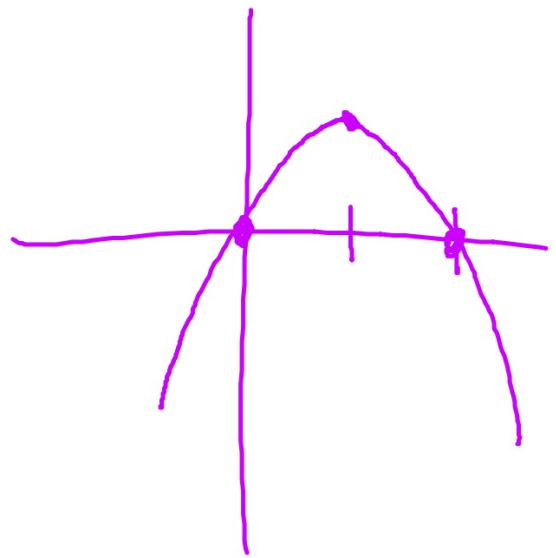
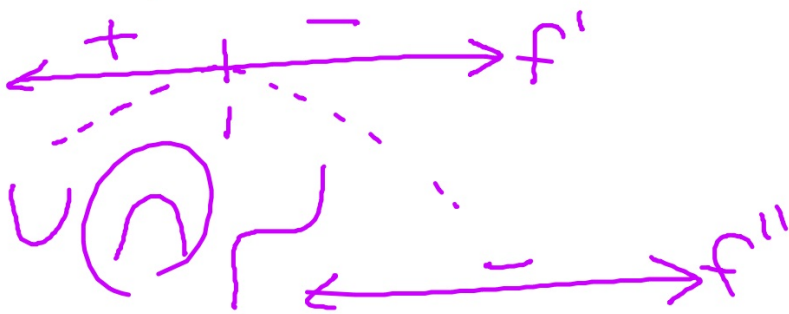
$$f(2) = 0$$

$$f(1) = 1$$



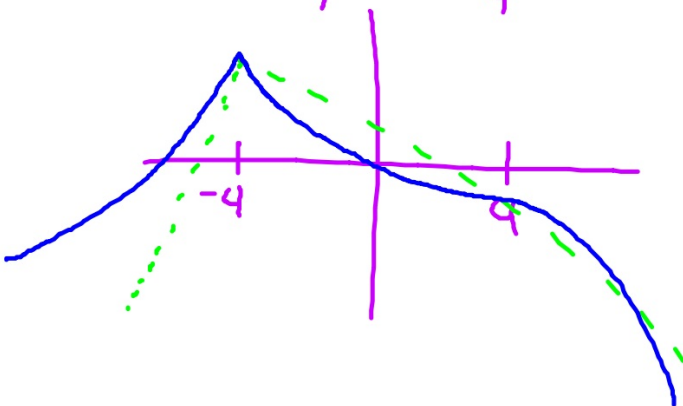
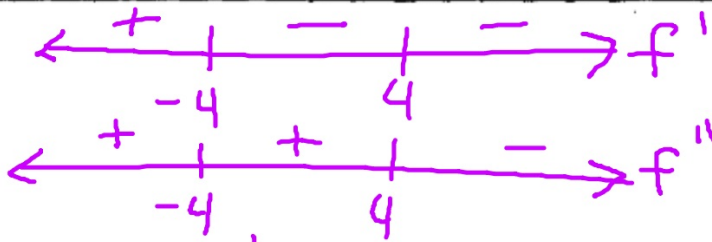
$$f(0) = f(2) = 0$$

- $f'(x) > 0$ if $x < 1$
- $f'(1) = 0$
- $f'(x) < 0$ if $x > 1$
- $f''(x) < 0$



Sketch a continuous function

| x | $x < -4$ | $x = -4$ | $-4 < x < 4$ | $x = 4$ | $x > 4$ |
|----------|----------|----------------|--------------|---------|----------|
| $f'(x)$ | Positive | fails to exist | negative | 0 | negative |
| $f''(x)$ | Positive | fails to exist | positive | 0 | negative |



p. 215: 8, 21, 27;
 p. 196: 65-68
 All