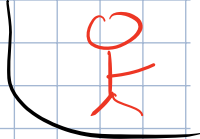


- HW on Sections 18 & 19
due Monday 10/18



- Quiz on Sections 18 & 19
Wed. 10/20

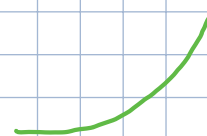
- Exam 2 10/27

Different Shapes: (commonly encountered)

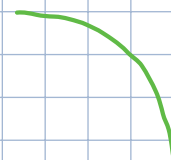
- Decreasing and concave up \longrightarrow



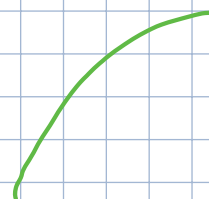
- Increasing and concave up \longrightarrow



- Decreasing and concave down \longrightarrow



- Increasing and concave down \longrightarrow



EX:

Sketch a graph of

$$f(x) = \frac{3}{2}x^4 - 2x^3 - 6x^2 + 8$$

Domain: $(-\infty, \infty)$

Roots: \rightarrow too ugly to find

Y-int: $f(0) = 8 \rightarrow (0, 8)$

Crit. pts: $f'(x) = 6x^3 - 6x^2 - 12x \rightarrow$
 $= 6x(x^2 - x - 2)$

$f'(x)$ is und?

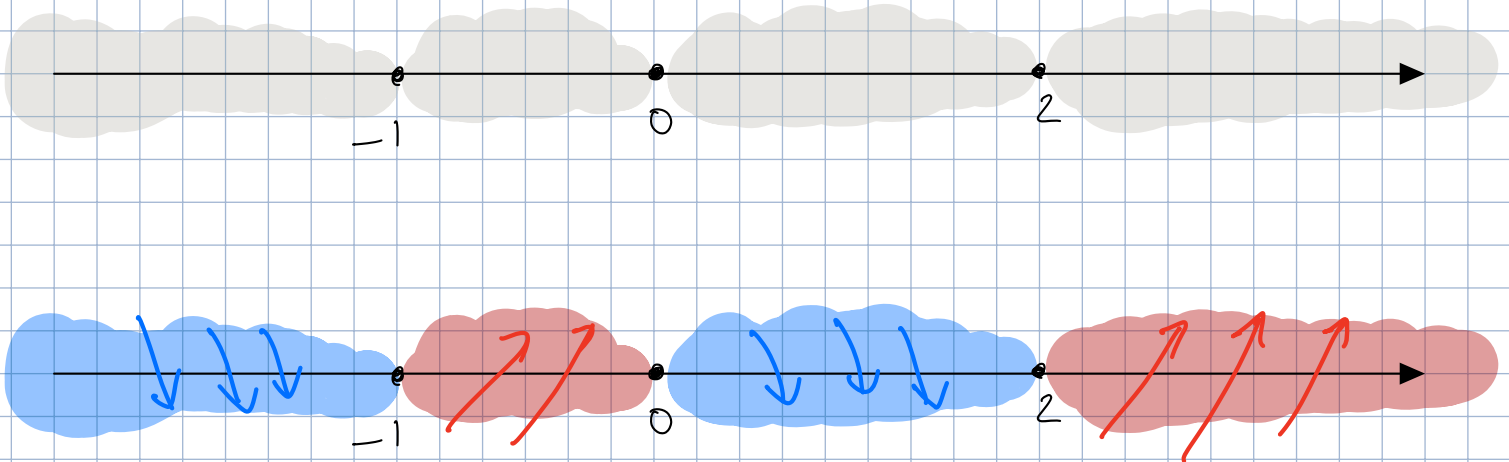
N.A.

$f'(x) = 0?$

$6x(x-2)(x+1) = 0$



Inc. Dec: $f'(x) = 6x(x-2)(x+1)$



⇒ local min @ $x = -1$, $x = 2$

local max @ $x = 0$

Concavity: $f''(x) = 18x^2 - 12x - 12$
 $= 6(3x^2 - 2x - 2)$

$f''(x)$ is und?

N.A.

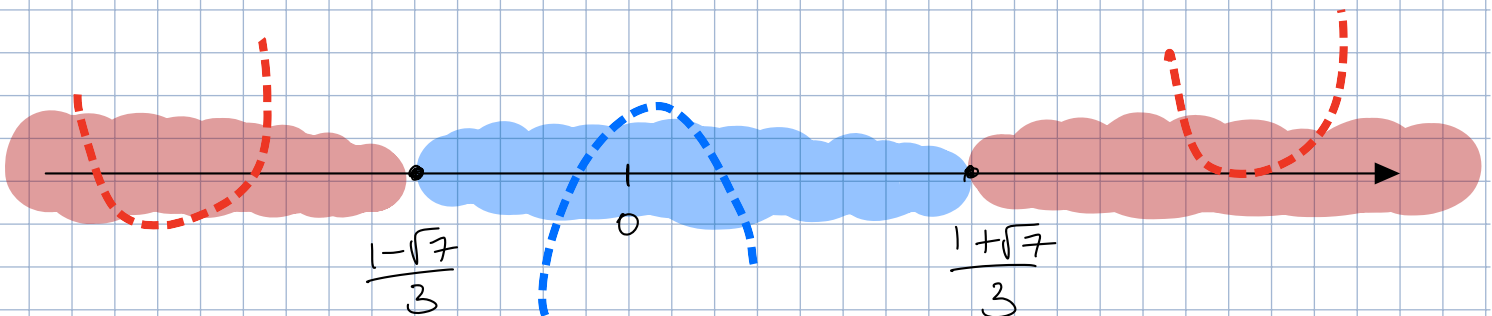
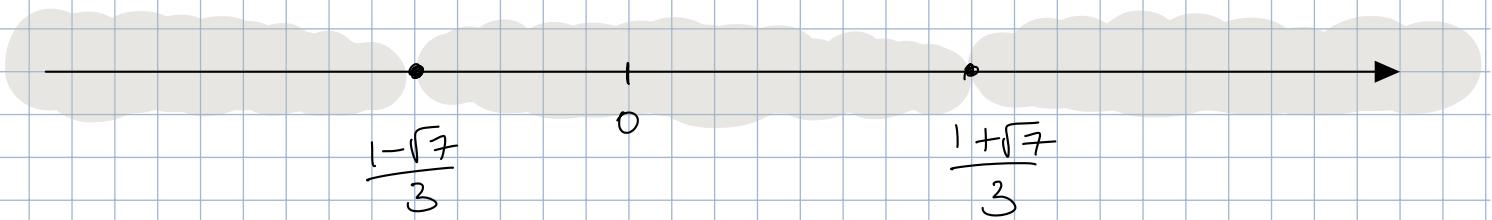
$f''(x) = 0?$

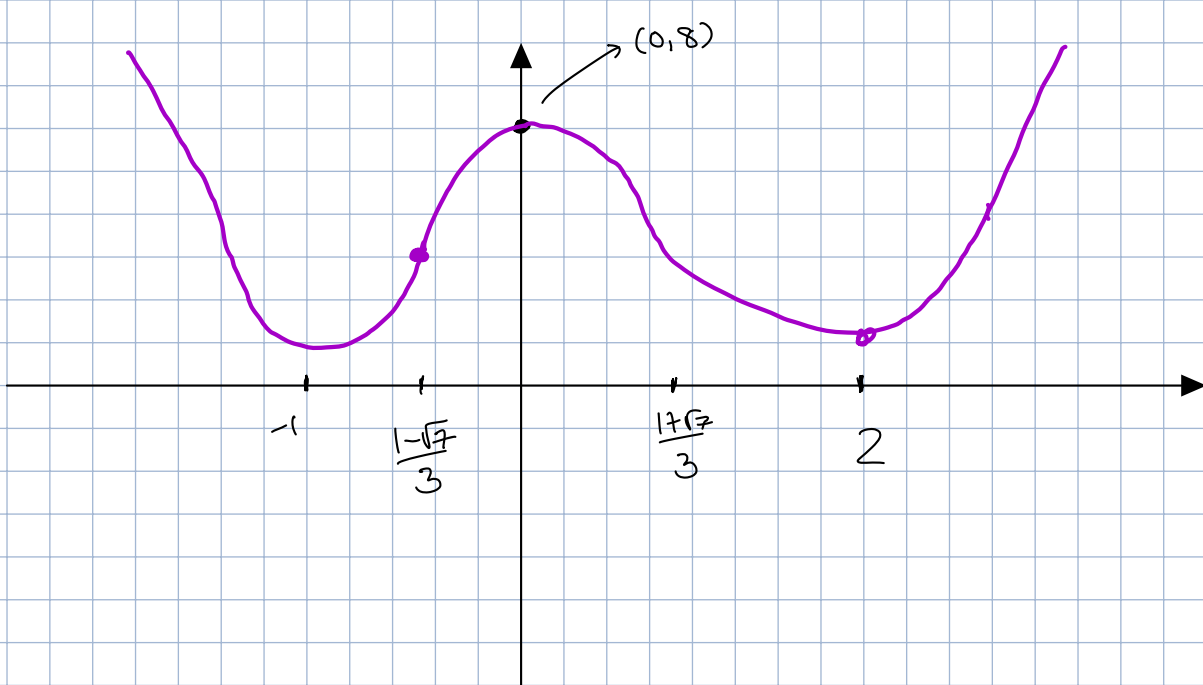
quad eqⁿ:

$$x = \frac{2 \pm \sqrt{4 - 4(3)(-2)}}{6}$$

$$= \frac{2 \pm \sqrt{28}}{6}$$

$$= \frac{1 \pm \sqrt{7}}{3}$$





$$x(x - \frac{2}{3})(x + \frac{7}{8})$$

