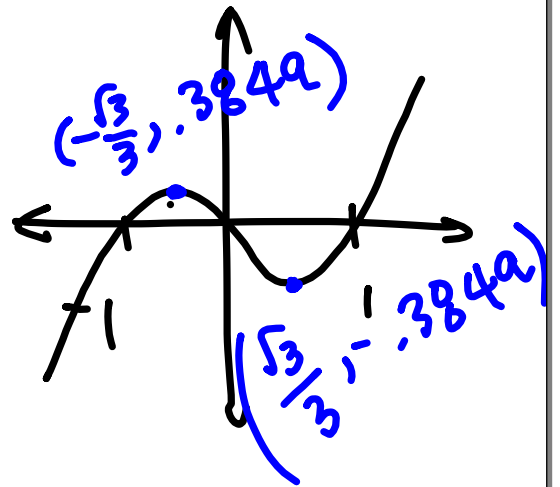


Sketch $y = x^3 - x$



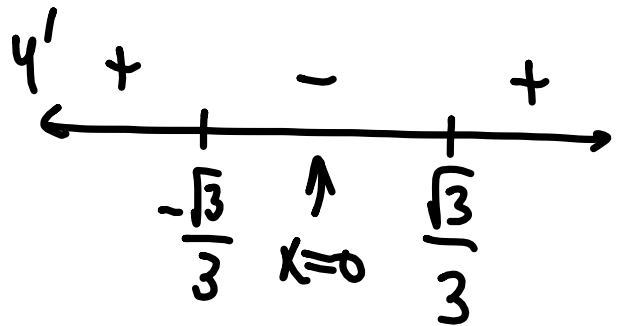
x-int: $-1, 0, 1$
y-int: 0



$$y' = 3x^2 - 1 = 0$$

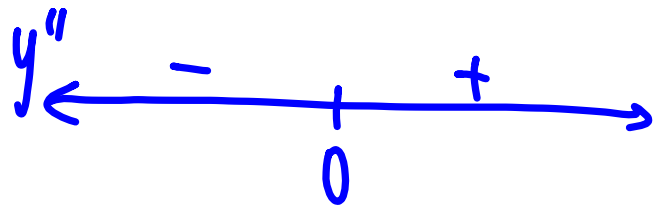
$$x^2 = \frac{1}{3}$$

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



$$y'' = 6x = 0$$

$$x = 0$$



$$y = x \sqrt{3-x} \quad \text{Sketch}$$

$$D: x \leq 3$$

$$x\text{-int: } x=0, 3$$

$$(y=0)$$

$$y\text{-int: } y=0$$

$$y' = \sqrt{3-x} + x \left(\frac{1}{2} (3-x)^{-\frac{1}{2}} (-1) \right)$$

$$= \frac{\sqrt{3-x}}{1} - \frac{x}{2\sqrt{3-x}}$$

$$= \frac{2(3-x)}{2\sqrt{3-x}} - \frac{x}{2\sqrt{3-x}} \quad y' \quad \begin{array}{c} + \quad 0 \quad - \quad \text{und} \\ \leftarrow \quad \quad \quad | \quad | \quad \rightarrow \\ \quad \quad \quad \quad 2 \quad 3 \end{array}$$

$$= \frac{6-3x}{2\sqrt{3-x}} \quad \begin{array}{l} y'=0 \rightarrow x=2 \\ y'=\text{und} \rightarrow x=3 \end{array}$$

$$y'' = \frac{-3(2\sqrt{3-x}) + 2 \left(\frac{1}{2} (3-x)^{-\frac{1}{2}} (-1) \right)}{4(3-x)}$$

$$= \frac{\left(-6\sqrt{3-x} + \frac{1}{\sqrt{3-x}} \right) \sqrt{3-x}}{(4(3-x)) \sqrt{3-x}}$$

$$y''=0 \rightarrow x = \frac{17}{6}$$

$$= \frac{-6(3-x) + 1}{4(3-x)^{3/2}} = \frac{-17 + 6x}{4(3-x)^{3/2}} \quad y''=\text{und} \rightarrow x=3$$

①

$$y'' \quad \begin{array}{c} - \quad 0 \quad + \quad \text{und} \\ \leftarrow \quad \quad \quad | \quad | \quad \rightarrow \\ \quad \quad \quad \quad \frac{17}{6} \quad 3 \end{array}$$