

# Sign Chart Method

Find Relative max/min.  
Justify.

$$f(x) = \frac{1}{4}x^3 - 3x$$

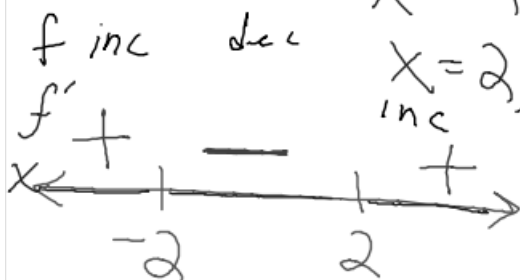
$$f'(x) = \frac{3}{4}x^2 - 3 = 0$$

$$\cancel{4}x \frac{3}{\cancel{4}}x^2 = 3 \times 4$$

$$3x^2 = 12$$

$$x^2 = 4$$

$$x = 2, x = -2$$



$$f'(0) = -3 \rightarrow \text{neg}$$

$f(-2), f(2)$  are rel. ext.

b/c  $f'$  changes sign.

\*  $f(-2)$  is a rel. max determine pos/neg.

b/c  $f'$  changes from pos to neg.

$f(2)$  is a rel. min \*

b/c  $f'$  changes from neg. to pos.

$$3\left(\frac{1}{4}x^2 - 1\right) = 0$$

$$3\left(\frac{1}{2}x + 1\right)\left(\frac{1}{2}x - 1\right) = 0$$

$x = 2 \quad x = -2$

① make a # line.  
with critical numbers  
marked.

② Note how many  
intervals are created.

② Choose a test point  
in each interval to