



## 10.1: Relative Max & Min

Sign Diagrams of  $f$ .

Ex1: Construct a sign diagram of a smooth curve.

Ex2: Construct a sign diagram of a curve w/a V.A. & a cusp.

Ex3: Construct a sign diagram of  $y = 3x^2(x+2)(x-3)$

Ex4: Construct a sign diagram of  $y = \frac{(x+1)(x-1)}{(x+3)(x-1)}$ .

Sign Diagrams of  $f'$

Ex5: Sketch the sign diagram of  $f'$  given a smooth  $f$  (2 examples).

Ex6: Given a sign diagram of  $f'$  sketch  $f$ .

Ex7: Sketch the fct.

a)  $y = (x^2 - 2x)^2$  and  $y' = 4x(x-1)(x-2)$

Horizontal  
P.O.I.

b)  $y = \frac{x^2(x-5)^3}{27}$  and  $y' = \frac{5x(x-2)(x-5)}{27}$

Ex8: Sketch  $f$ .

a)  $y = \frac{1}{4}x^4 - \frac{2}{3}x^3 + \frac{1}{2}x^2 - 2$

b)  $y = 3x^5 - 5x^3 + 1$ .