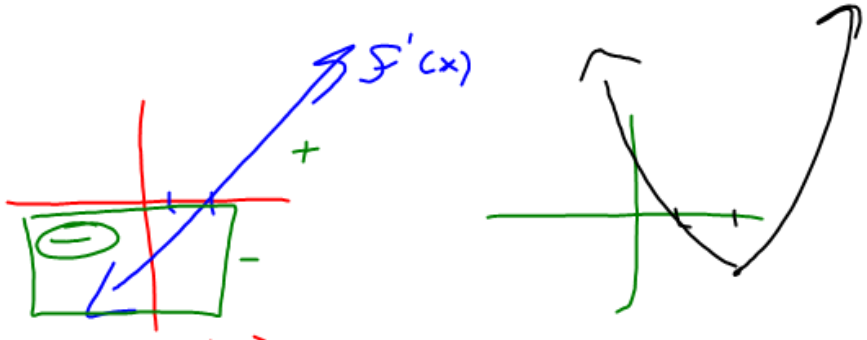
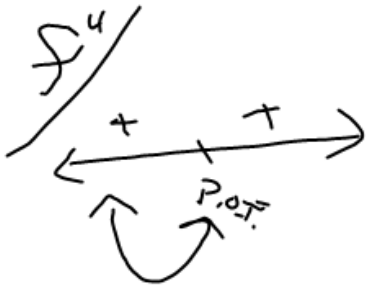


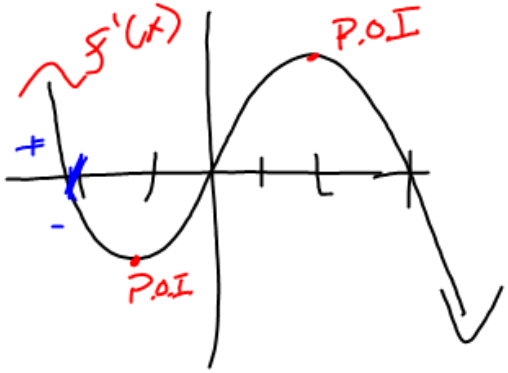
f(x)

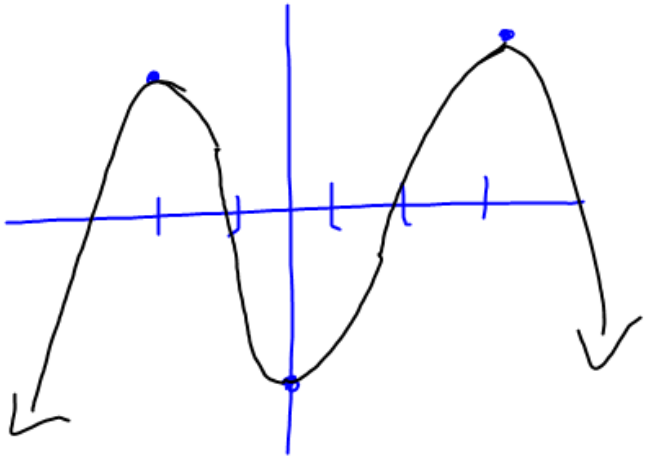
dec: $(-\infty, 2)$: $x < 2$

inc: $(2, \infty)$

$x = 2$ Rel min







f(x)

inc: $(-\infty, -2) \cup (0, 3)$

dec: $(-2, 0)\ (3, \infty)$

$x = 3, x = -2$ Rel max

$x = 0$ Rel min

Concave ↑ : $(-1, 2)$

Concave ↓ : $(-\infty, -1)$ $(2, \infty)$

Pg 205

15 a.

$$h(x) = \frac{f(x)}{x^2} = \frac{5x^3 - 3x^2 + 10}{x^2}$$

$$\lim_{x \to \infty} \frac{5x^3 - 3x^2 + 10}{x^2}$$

DNE or ∞

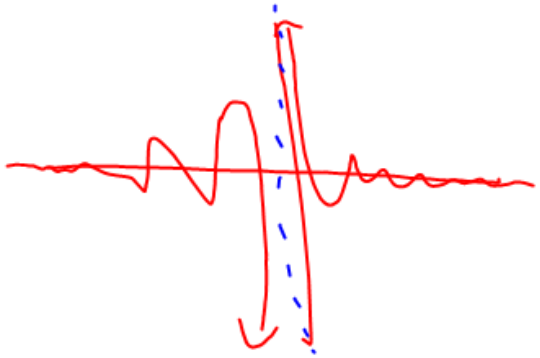
1

2

3

(31) $\lim_{x \to \infty} \frac{\sin 2x}{x} = 0$

(33) $\lim_{x \to \infty} \frac{1}{2x + \sin x} = 0$



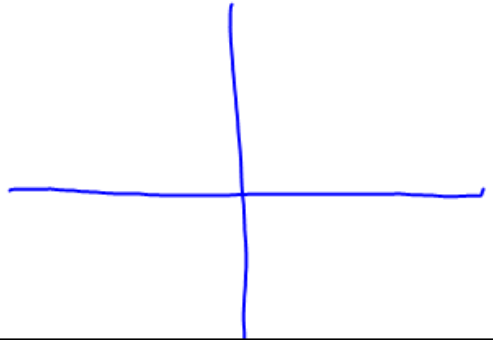
$\frac{1}{\infty}$

G1 $y = \frac{2x^2}{x^2-4}$

y-int: (0,0)

VA: $x = \pm 2$ (bottom = 0)

HA: $y = 2$



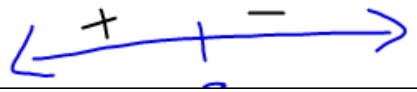
$y' = \frac{(x^2-4)(4x) - 2x^2(2x)}{(x^2-4)^2}$

$y' = \frac{4x^3 - 16x - 4x^3}{(x^2-4)^2}$

$y' = \frac{-16x}{(x^2-4)^2}$

$-16x = 0$

C.P. $x = 0$



3.6 Sketching

$$f(x) = \frac{2(x^2-9)}{(x^2-4)}$$

y-int: $(0, \frac{9}{2})$

VA: $x = \pm 2$ (set Bottom $= 0$)

HA: $y = 2$ ① $\frac{x^2}{x^3} \to y = 0$

② $\frac{2x^3}{7x^3} \to y = 2/7$

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

slant asymptote: $x+1 \overline{)\, x^3-3x^2+2x-1}$

x^2-2x+4

$-x^3+x^2$

$-2x^2+2x$

$+2x^2+2x$

$4x-1$

$$f'(x) = \frac{20x}{(x^2-4)^2}$$

C.P. $20x = 0$

Pg 215

11