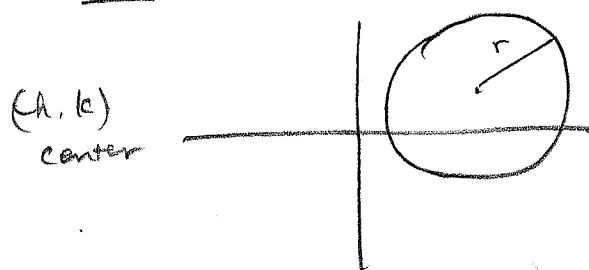


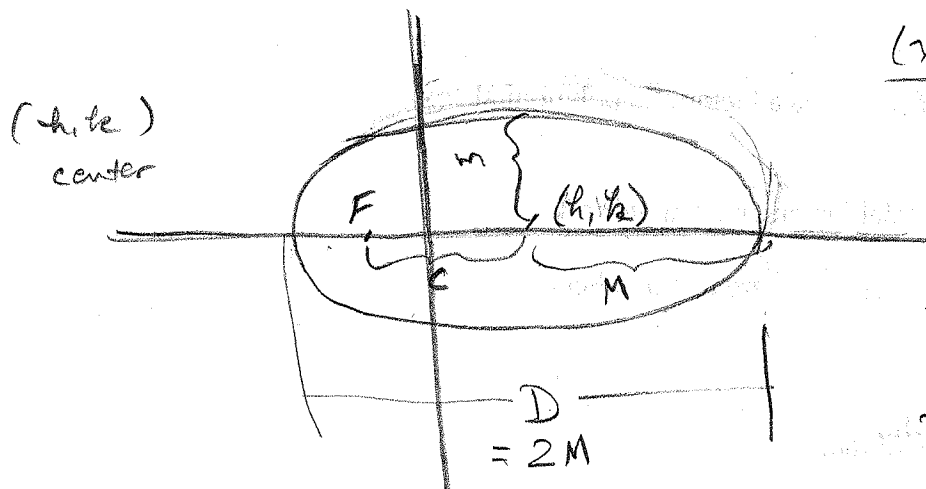
Circle



$$(x-h)^2 + (y-k)^2 = r^2$$

same coeff on x + y

(note: when $r=1$, it's a unit circle)

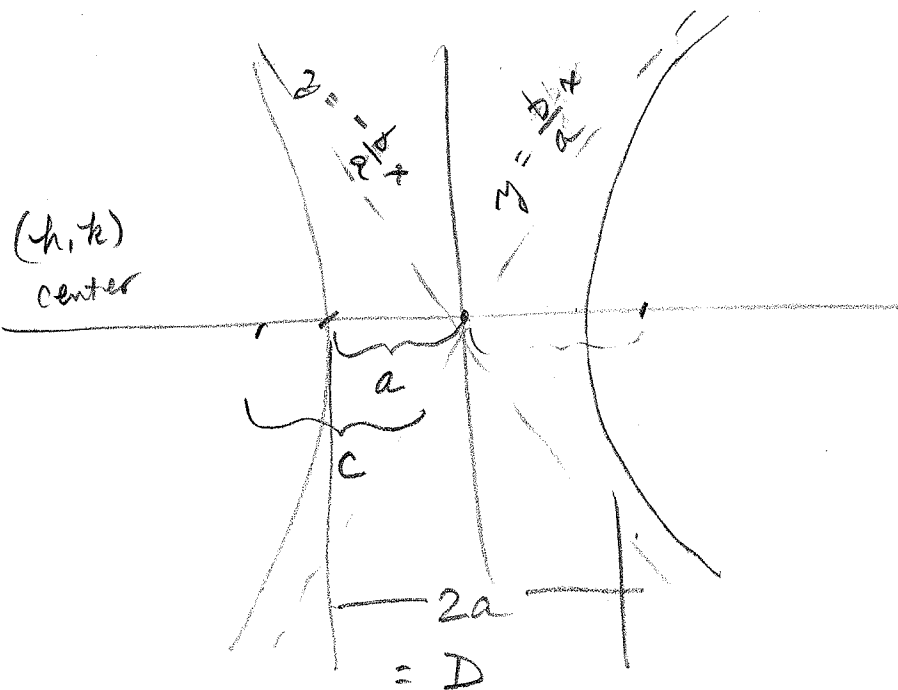


$$\frac{(x-h)^2}{M^2} + \frac{(y-k)^2}{m^2} = 1$$

$$m^2 + c^2 = M^2$$

$$2M = D$$

D is called sum of lengths



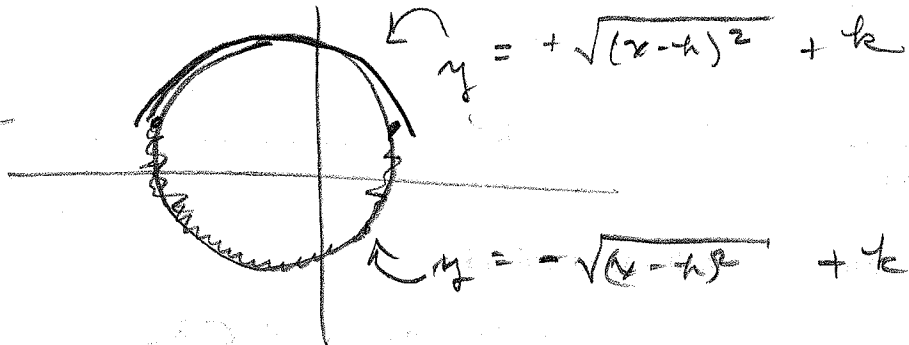
$$\frac{(x-h)^2}{a^2} - \frac{(y-k)^2}{b^2} = 1$$

$$a^2 + b^2 = c^2, \quad y = \frac{b}{a}x$$

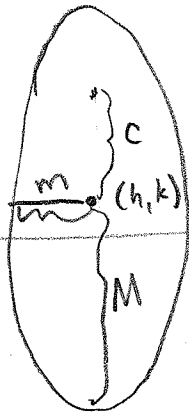
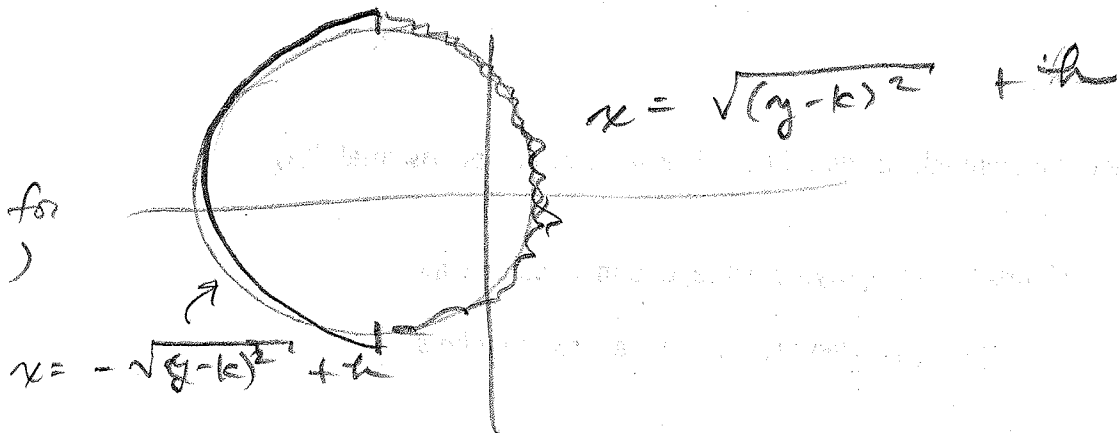
D is called the difference distance

Semi Circle

(Solve for
y)



(Solve for
x)



$$\frac{(x-h)^2}{m^2} + \frac{(y-k)^2}{M^2} = 1$$

$$m^2 + c^2 = M^2$$

$$2M = D$$

$$\frac{(y-k)^2}{a^2} - \frac{(x-h)^2}{b^2} = 1$$

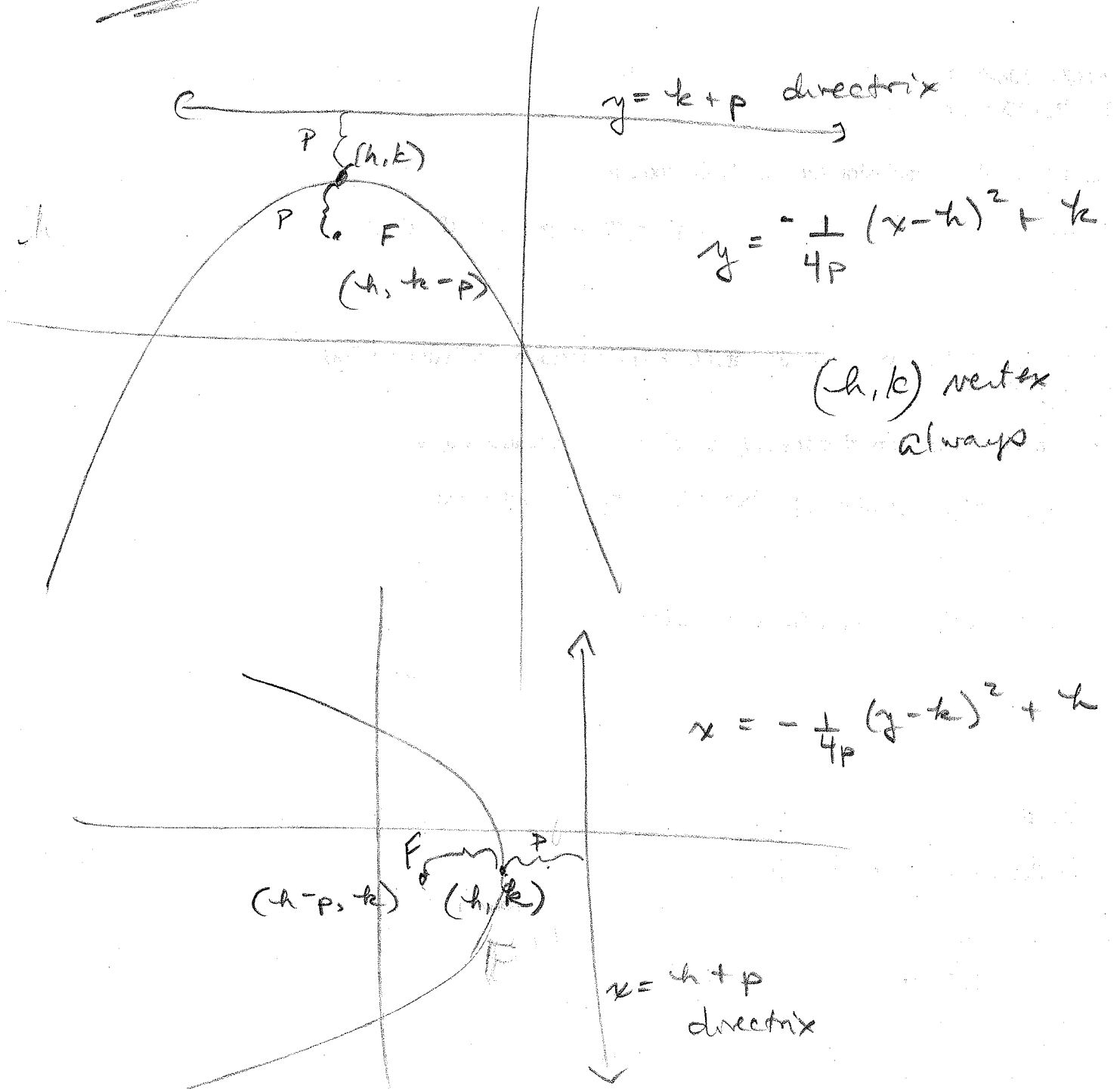
$$a^2 + b^2 = c^2$$

$$2a = D$$

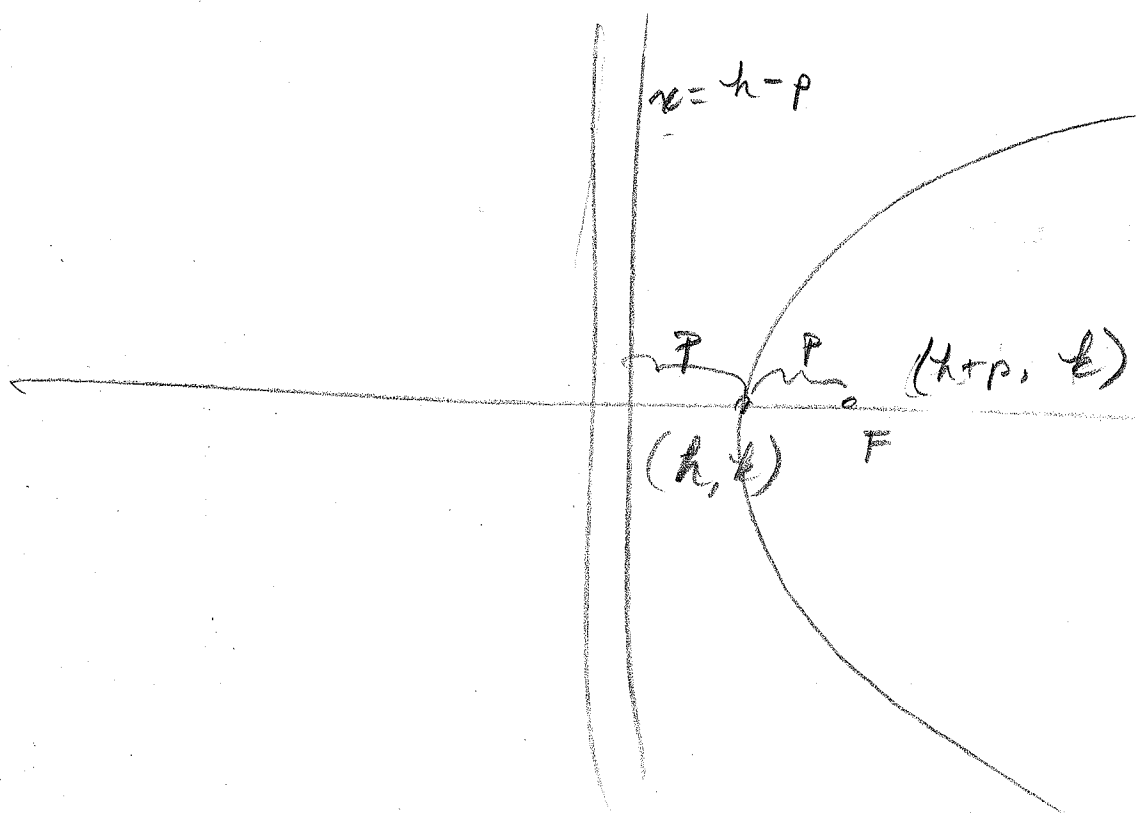
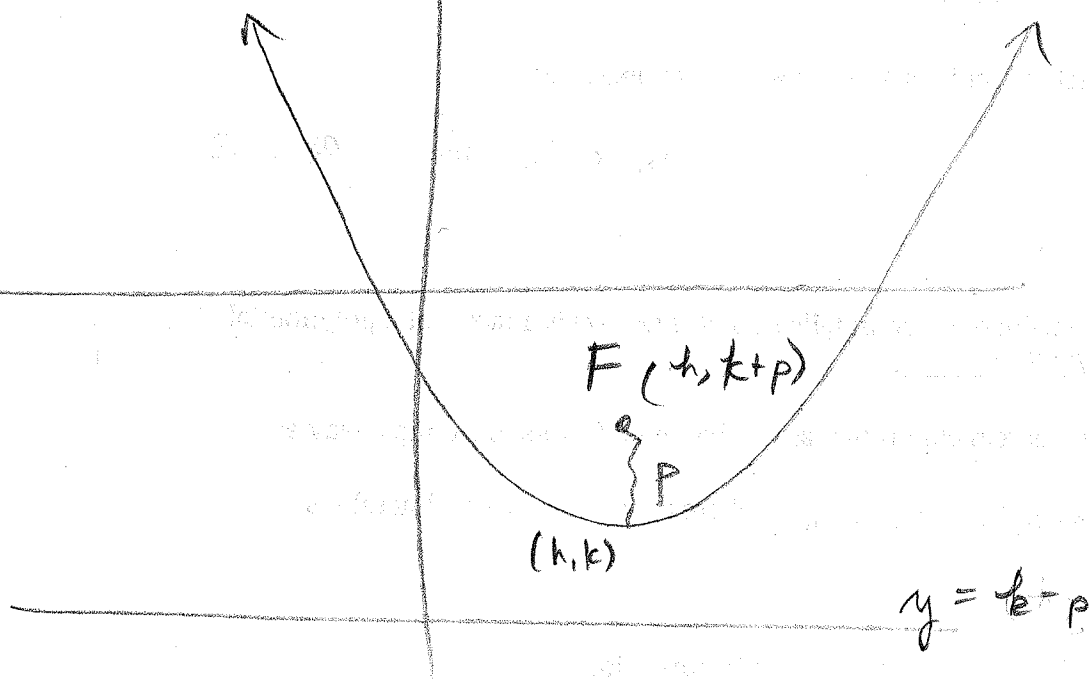
c

a

Parabolas



$$y = \frac{1}{4p}(x-h)^2 + k$$



1. The first part of the document is a letter from the President of the United States to the Congress, dated January 3, 1862.

2. The second part is a report from the Secretary of the Interior, dated January 10, 1862.

3. The third part is a report from the Secretary of the Treasury, dated January 15, 1862.

4. The fourth part is a report from the Secretary of the War, dated January 20, 1862.

5. The fifth part is a report from the Secretary of the Navy, dated January 25, 1862.

6. The sixth part is a report from the Secretary of the State, dated January 30, 1862.

7. The seventh part is a report from the Secretary of the War, dated February 5, 1862.

8. The eighth part is a report from the Secretary of the Navy, dated February 10, 1862.

9. The ninth part is a report from the Secretary of the State, dated February 15, 1862.

10. The tenth part is a report from the Secretary of the War, dated February 20, 1862.

11. The eleventh part is a report from the Secretary of the Navy, dated February 25, 1862.

12. The twelfth part is a report from the Secretary of the State, dated February 28, 1862.

Review H.A. + S.A. + V.A.

1. Dom $\rightarrow$ VA

$$R(x) = \frac{P(x)}{Q(x)}$$

$n > m$

$$f(x) = \frac{x^3 - 1}{x - 1} = \frac{(x-1)(x^2 + x + 1)}{x-1}$$

Dom: $\{x \mid x \neq 1\}$

Hole (1,3)

No H.A.

2.

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

$n < m$

$y=0$ H.A.

$x=3$ VA

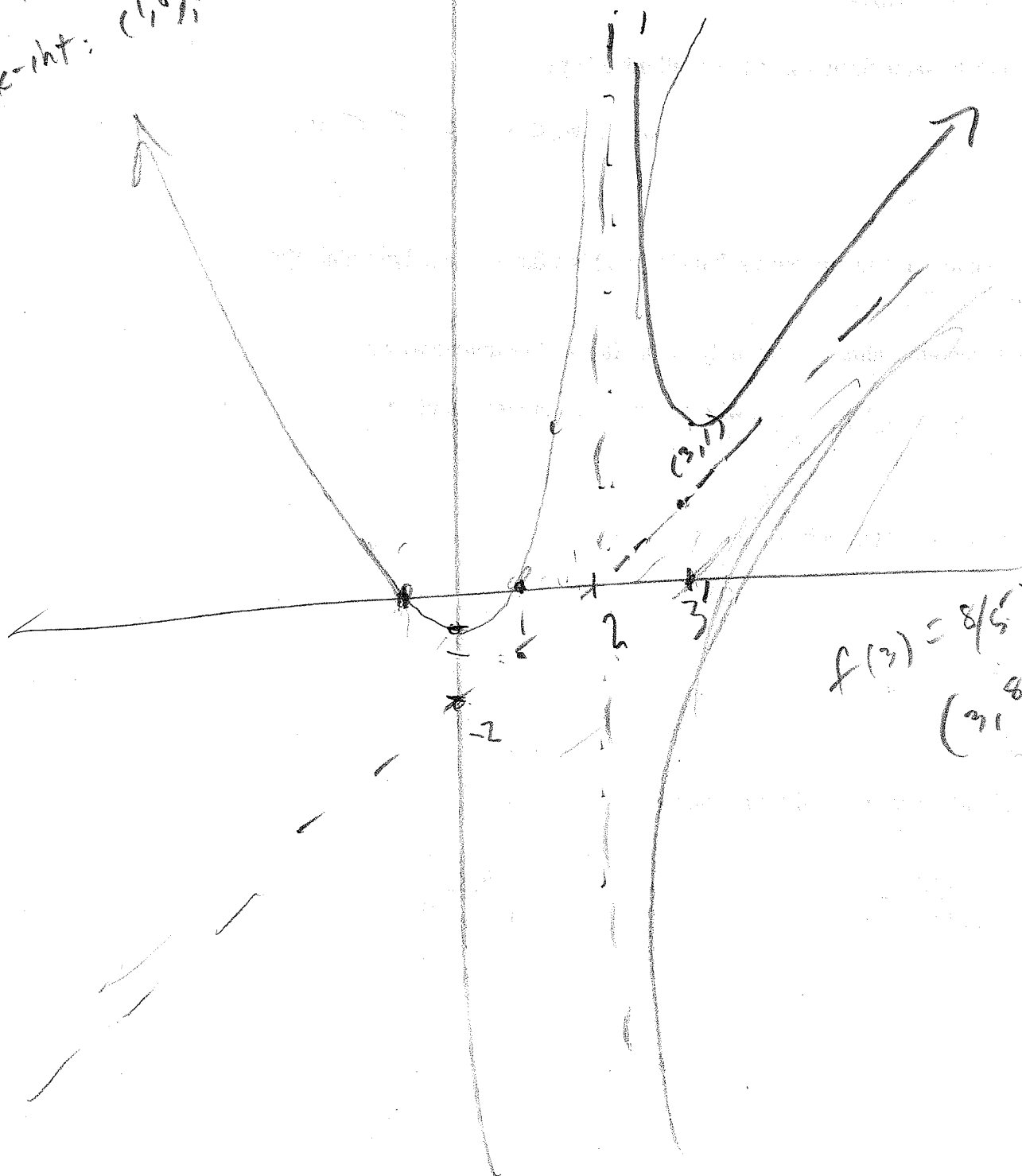
limit
 $x \rightarrow \infty$

$$f(x) = 0$$

$$\frac{k}{\infty} = 0$$

$$\frac{k}{0} = \infty$$

$y\text{-int: } (0, -\frac{1}{2})$
 $x\text{-int: } (1, 0), (-1, 0)$



$f(7) = \frac{8}{5} > SA?$
 $(7, \frac{8}{5})$

3. $n = m$ HA $y = \text{ratio l.c.s.}$

~~$y = \frac{1x^4 - 3x^2 + 1}{2x^4 + 9x^2 - 6}$~~ $y = \frac{1}{2}$ HA

$y = \frac{1x^4 - 3x^2 + 1}{2x^4 + 9x^2 - 6}$

4. SA

$n = m + 1$

$n > m$ by 1

$y = \frac{x^2 - 1}{x + 2}$ $n = 2$ $m = 1 \rightarrow$ SA

$x + 2 \overline{) x^2 + 0x - 1}$
 $\underline{-(x^2 + 2x)}$
 $-2x - 1$
 $\underline{-(-2x - 4)}$
 3

$y = x^{-2}$ SA

VA: $x = -2$

- change of index