

## 2.4 Sketching Graphs of Rational Functions

- sketch — non-permiss. values of  $x$  (holes, vert. asy.)
- hor. or oblique asym. — deg. top/bottom
- intercepts

ex. 1

$$y = \frac{x^2 - 5x + 4}{1 - x}$$

NPV  $x \neq 1$

FACTOR  $\frac{(x-1)(x-4)}{-(-1+x)} \Rightarrow \frac{-(x-4)}{1} = y$

hole at  $x=1$   
 $y=3$

linear

ex. 2

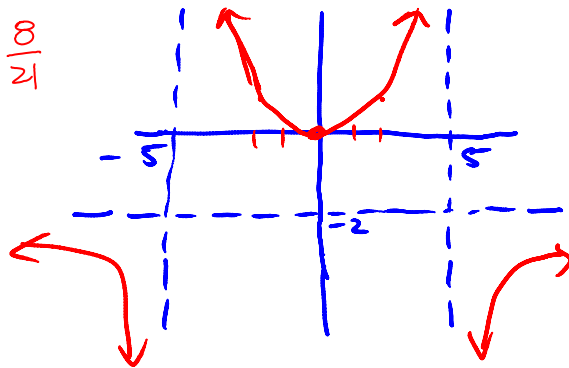
$$y = \frac{-2x^2}{x^2 - 25}$$

NPV  $x \neq \pm 5$   
vert. asym.

horiz. asym  $\rightarrow \frac{LC}{LC} = \frac{-2}{1} = -2 = y$

| x       | y                        |
|---------|--------------------------|
| 0       | 0                        |
| 2       | $\frac{8}{21} = 0.38$    |
| -2      | 0.38                     |
| $\pm 6$ | $-\frac{72}{11} = -6.5$  |
| $\pm 7$ | $-\frac{98}{24} = -4.08$ |

$$\frac{-2(-2)^2}{(-2)^2 - 25} = \frac{-8}{-21} = \frac{8}{21}$$



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