

Identify any asymptotes, intercepts, holes, or HA crossings in the functions below. Then sketch graphs of each function. Label all intercept, asymptotes, holes, etc.

$W(x) = \frac{x^3 + 6x^2 - x - 6}{4x^2 + 8x - 96}$

$\frac{(x+1)(x-1)(x+6)}{4(x+6)(x-4)}$

- a. x-intercept(s): $x = -1$ (1,0)
- b. y-intercept: $0, \frac{1}{6}$
- c. asymptotes:
 - vertical: $x = 4$
 - horiz: N/A
 - oblique: $\frac{1}{4}x + 1$
- d. hole(s): $(-6, -\frac{7}{8})$
- e. HA crosses: N/A

$\frac{(-6+1)(-6-1)}{4(-6-4)}$

$\frac{(-5)(-7)}{4(-10)} = \frac{+35}{-40} = -\frac{7}{8}$

$\frac{(0+1)(0-1)}{4(0-4)} = \frac{-1}{-16}$

$\frac{\frac{1}{4}x + 1}{4x - 16} \left[\frac{x^2 - 1}{-(x^2 + 4x)} \right]$

$t(x) = \frac{x^2 + 2x - 3}{x^3 + 8x^2 - x - 8}$

- a. x-intercept(s): _____
- b. y-intercept: _____
- c. asymptotes:
 - vertical: _____
 - horiz: _____
 - oblique: _____
- d. hole(s): _____
- e. HA crosses: _____

$x = 4$
 $y = \frac{1}{4}x + 1$

