

HAT 1/23/18  
WS Rational Functions

Use what you know about asymptotes (vertical, horizontal, oblique), intercepts, and holes to sketch each function. Do NOT use your calculator! ☺

1)  $y = \frac{x^2 + 5x - 6}{x + 6}$

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

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

4)  $y = \frac{2x^2 + 10x}{x + 3}$

5)  $y = \frac{2x^2 - 8}{4x^2 + 2}$

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

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

8)  $y = \frac{x + 2}{x^2 - 2x + 1}$

9)  $y = \frac{x^2 + 4x + 3}{x^3 - x^2 - 8x + 12}$

(Hint: 2 is a zero of the denominator!)

10)  $y = \frac{x^4 - 9x^3 + 18x^2 + 32x - 96}{x^3 - x^2 - 5x - 3}$

(Hint: 4 is a zero of multiplicity 2 of the numerator and -1 is a zero of multiplicity 2 of the denominator!)