

1. Identify the asymptotes (horizontal, vertical, or slant).

a) $f(x) = \frac{x^2 - x - 6}{(4-x)(3+x)} = \frac{(x-3)(x+2)}{(4-x)(3+x)}$ v.a. $x=4, -3$ h.a. $y=-1$

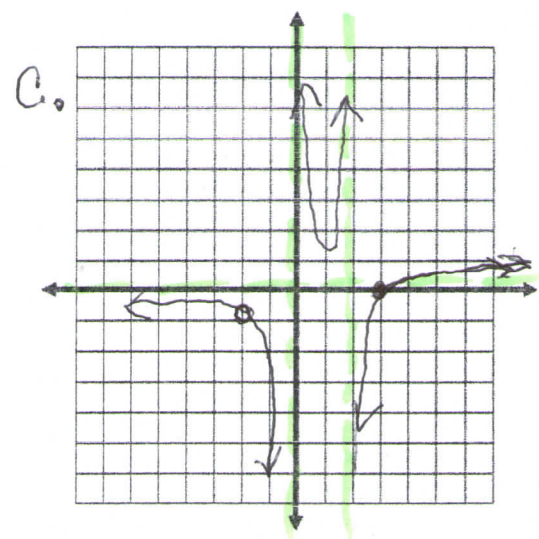
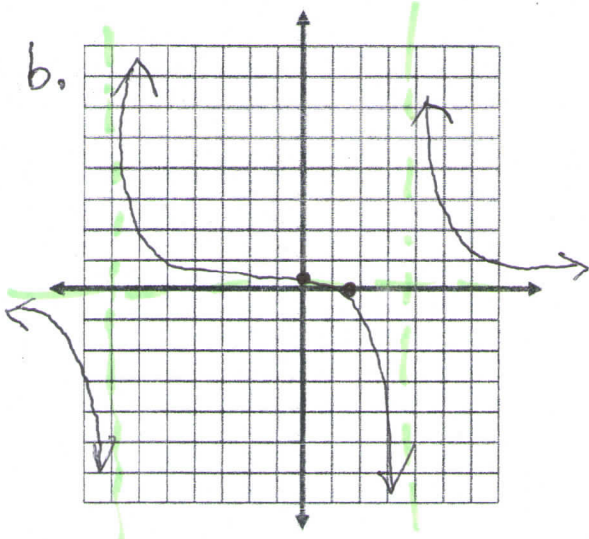
b) $g(x) = \frac{x^2 + 3x - 28}{2x - 3} = \frac{(4-x)(3+x)}{2x-3}$ v.a. $x=-7, x=4$ h.a. $y=0$

c) $h(x) = \frac{x^2 - x - 6}{x^3 - 4x} = \frac{(x+2)(x-3)}{x(x+2)(x-2)}$ v.a. $x=0, 2$ h.a. $y=0$
 (hole at $x=-2$)

d) $p(x) = \frac{x^2 - x}{x+1} = \frac{x(x-1)}{x+1}$ v.a. $x=-1$ h.a. none slant $y=x-2$

-1) $\begin{array}{r} 1 \ -1 \ 0 \\ -1 \ 2 \\ \hline 1 \ -2 \ 22 \end{array}$

22. Graph the functions for "b" and "c" from problem #1.



3. Graph the rational function described below:

- y-intercept is -1.5
- roots are 1 and -5
- horizontal asymptote: $y = -2$
- vertical asymptotes: $x = 5$ and $x = -3$
- as $x \rightarrow 5^+$, $y \rightarrow -\infty$
- as $x \rightarrow 5^-$, $y \rightarrow \infty$
- as $x \rightarrow -3^+$, $y \rightarrow -\infty$
- as $x \rightarrow -3^-$, $y \rightarrow \infty$

