

[49] There is a vertical asymptote at $x = -1$ since -1 is a zero of the denominator but is not a zero of the numerator. To find any slant asymptote we will divide the numerator by the denominator. This can be done using synthetic division:

$$\begin{array}{r|rrr} -1 & 1 & 0 & 1 \\ & & -1 & 1 \\ \hline & 1 & -1 & 2 \end{array}$$

Therefore, $f(x) = x - 1 + \frac{2}{x+1}$ and as $|x|$ becomes large, $f(x)$ approaches $y = x - 1$. There is a slant asymptote at $y = x - 1$. The graph of f using dot mode is shown in *Figure 49a*. Sketch the vertical asymptote $x = -1$ and the slant asymptote $y = x - 1$. Then, use *Figure 49a* as a guide to a more complete graph of f as shown in *Figure 49b*.

$[-8, 8, 1]$ by $[-8, 8, 1]$

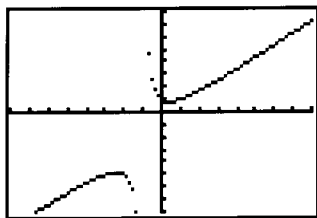


Figure 49a

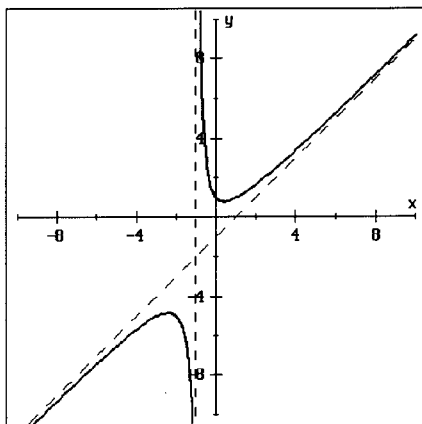


Figure 49b