

Example Sketch the graph and provide information about intercepts and asymptotes.

$$f(x) = \frac{x^2 - x - 2}{x - 1}$$

1. Find and plot the x-intercepts. (Set numerator = 0 and solve for x)

$$\begin{aligned} x^2 - x - 2 &= 0 \\ (x + 1)(x - 2) &= 0 \\ x &= -1 \text{ and } x = 2 \end{aligned}$$

2. Find and plot the y-intercepts. (Let x = 0 and solve for y)

$$f(0) = \frac{0^2 - 0 - 2}{0 - 1} = \frac{-2}{-1} = 2$$

3. Find and plot the Vertical Asymptotes. (Set denominator = 0 and solve for x)

$$(x - 1) = 0 \quad x = 1$$

4. Find and plot the Horizontal Asymptotes. (Top heavy, Bottom heavy or Same)

(Rule 3) Top Heavy none !

5. Find and plot the Slant Asymptotes. (Divide numerator by denominator.)

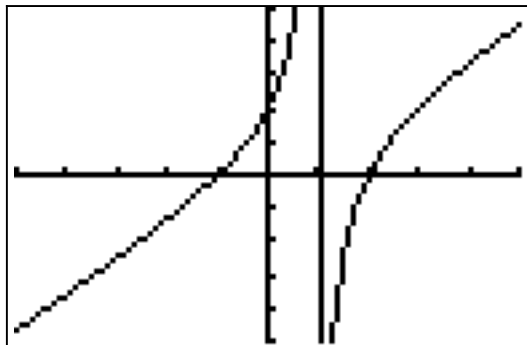
$$\begin{array}{r} x - 1 \overline{) x^2 - x - 2} \\ \underline{-x^2 + x} \\ x - 2 \end{array} \quad y = x$$

6. Plot at least one point between and beyond each x-intercept and vertical asymptotes.

choose:

x = -2	x = 0	x = 1.5	x = 3
y = -1.3	y = 2	y = -2.5	y = 2

Note: YOU MAY WANT TO PICK MORE POINTS TO GET A BETTER GRAPH !



ANSWER: