

Graphing Rational fns

$$\frac{P(x)}{Q(x)} = r(x)$$

① Factor P and Q completely and cancel common factors.

② Identify

(a) zeros $P(x)=0$

(b) v. asymptotes $Q(x)=0$

(c) h. asymptotes (if $\deg P = \deg Q$)

$$\left. \begin{array}{l} a = \text{leading coel. of } P \\ b = \text{leading coel. of } Q \end{array} \right\} \Rightarrow y = \frac{a}{b}$$

$\pm$ / determined by sign of $r(x)$.

③ Remove points not in domain of r.

$$\frac{3x-2}{x+1}$$

$$\frac{x^2-9}{x-3}$$

$$\frac{1}{1-x^2}$$