

①

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MAT 122Review:Rational Functions : $\frac{\text{poly}}{\text{poly}} = \frac{P(x)}{Q(x)}$ • Domain : everywhere $Q(x) \neq 0$

• x-intercepts

① cancel common factors

② solve $P(x) = 0$

• y-asymptotes

① cancel common factors

② solve $Q(x) = 0$

• h-asymptotes

• none if $\deg P > \deg Q$ • $y = 0$ if $\deg P < \deg Q$ • $y = \frac{a}{b}$ if $\deg P = \deg Q$ (a and b leading coeff. of P and Q)Practice: Graph

$$\frac{3x+1}{x+1} \text{ ① } \frac{x^2+2x+3}{x^2+5x+6}$$

$$\text{② } \frac{x^2-25}{x+5}$$

$$\text{③ } \frac{1}{x-2}$$