

2.7 Graphing Rational Functions (Part 2)

Let $R(x) = \frac{N(x)}{D(x)}$ be a rational function.

Basic steps in drawing the graph of $y = R(x)$.

- 1) Simplify (factor and cancel, if possible)
- 2) Find the y-intercept. [evaluate $R(0)$]
- 3) Find the x-intercepts. [Solve: $R(x) = 0 \Rightarrow N(x) = 0$]
- 4) Find any VAs ($x = a$) [solve: $D(x) = 0$]
- 5) Find any HAs ($y = b$) [Compare degrees of $N(x)$ and $D(x)$]
- 6) Use a Graphing Calculator to complete the graph.

Ex. ① sketch: $f(x) = \frac{2x^2 - x - 6}{x^2 - x - 6}$

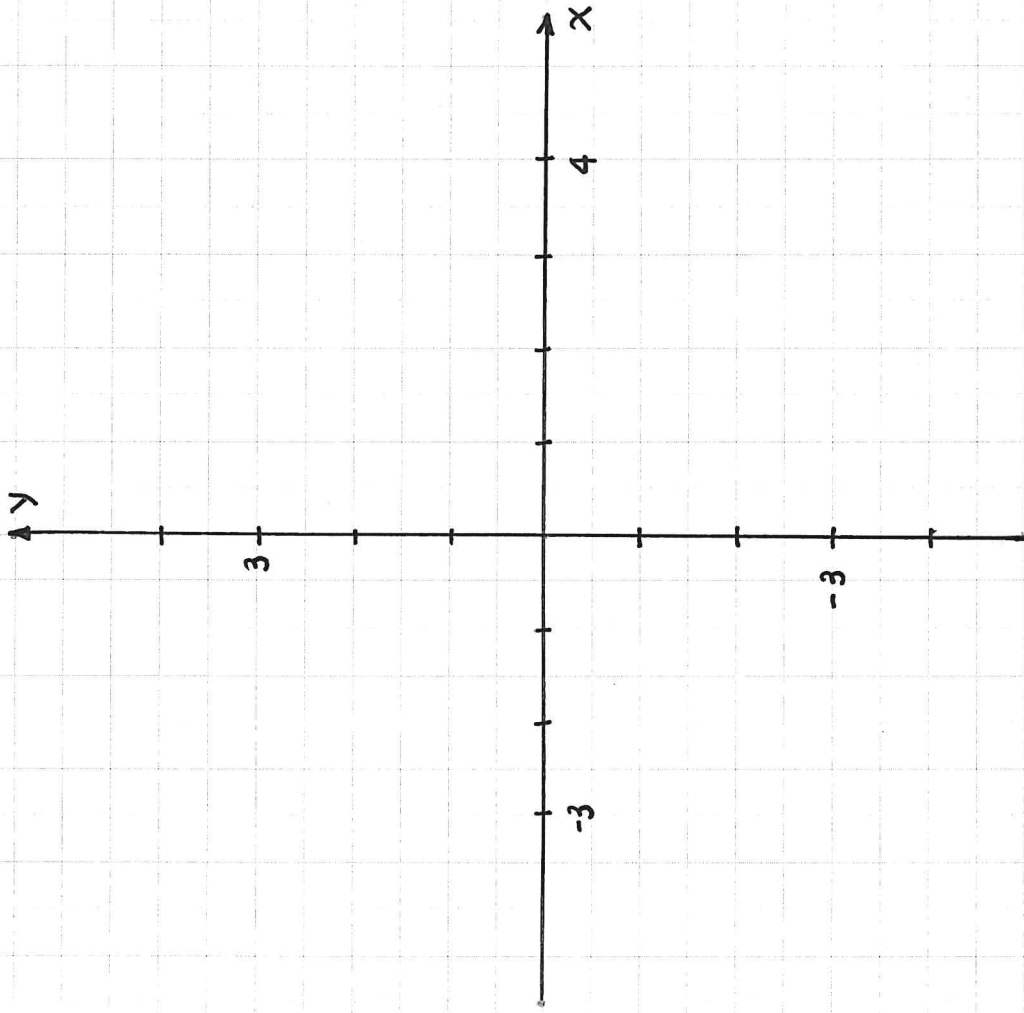
1) $f(x) =$

2) $f(0) =$

3) Solve:

4) Solve:

5) HA:



Ex. ② sketch: $g(x) = \frac{4x^2}{x^3 - 4x^2 + 4x}$

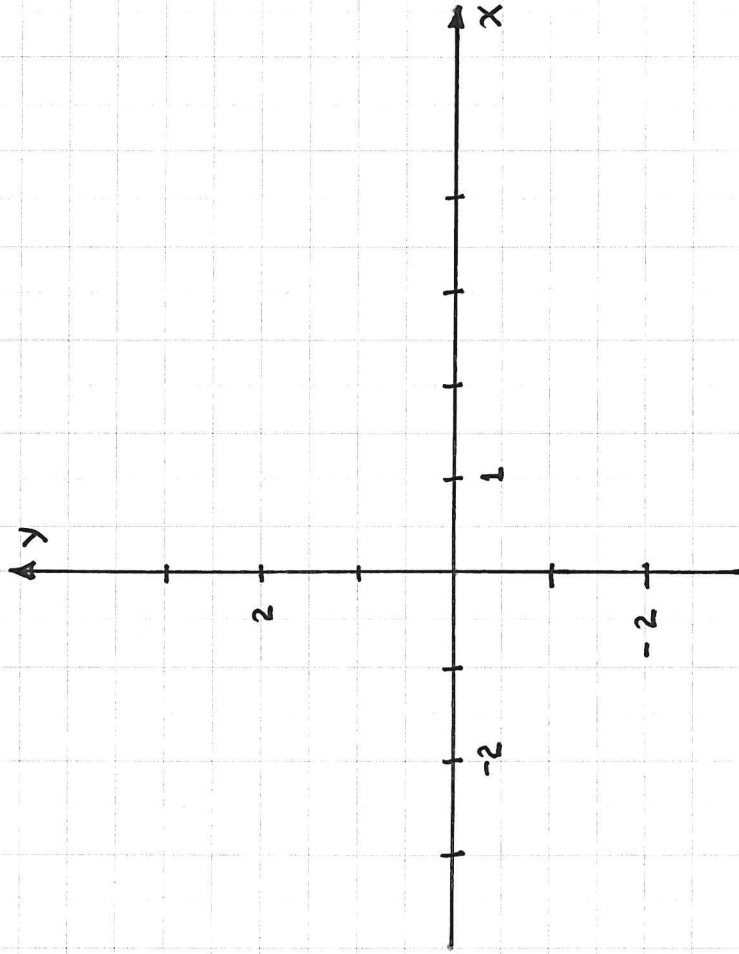
1) $g(x) =$

2) $g(0) =$

3) Solve:

4) Solve:

5) HA:



Ex. ③ Sketch: $h(x) = \frac{x^2 - 2x + 1}{x - 2}$

1) $h(x) =$

2) $h(0) =$

3) Solve:

4) VA:

5) HA:

