# Chapter 9 Section 5

## MA1032 Data, Functions & Graphs

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# Zeros

## Examples

- $f(x) = \frac{x-3}{x+2}$
- $g(x) = \frac{3x^2}{(x-1)(x-3)}$
- $h(x) = \frac{x^2+1}{x-2}$

# Vertical Asymptotes

## Example

$$f(x) = \frac{x-3}{x+2}$$

| $x$ | -3 | -2.1 | -2.01 | -2 | -1.99 | -1.9 | -1 |
|---|---|---|---|---|---|---|---|
| $f(x)$ | | | | | | | |

## Example

You try.

$$g(x) = \frac{3x^2}{(x-1)(x-3)}$$

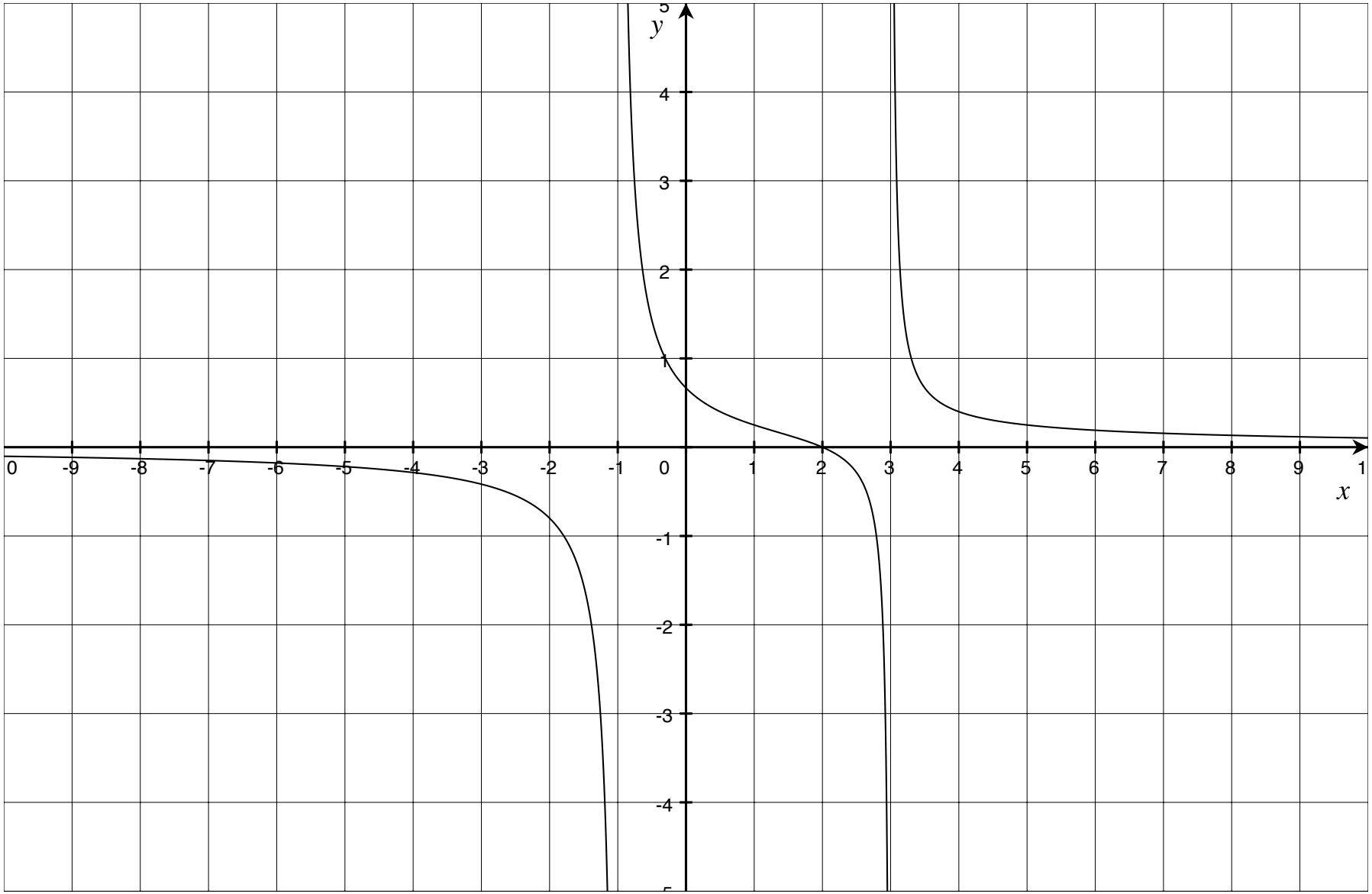
$$h(x) = \frac{x^2+1}{x-2}$$

# Holes

Example

$$f(x) = \frac{x^2 + x - 6}{x^2 - 6x + 8}$$

# Working the other way.



# Summary

- Zeros
- Vertical Asymptotes
- Local behavior
- Holes
- Factored form