

## Lesson 2.1A: Background Knowledge of Functions

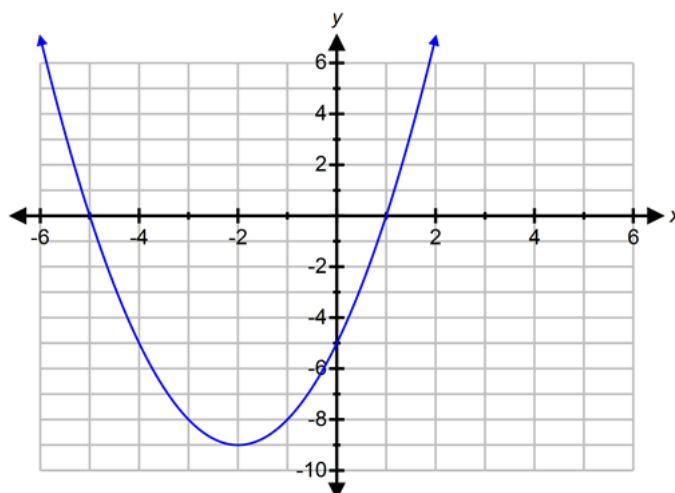
- ↳
- Polynomial Functions
  - Rational Functions

### Polynomial Functions

#### Example 1

Graph  $y = x^2 + 4x - 5$

- ↳
- x-intercepts
  - vertex

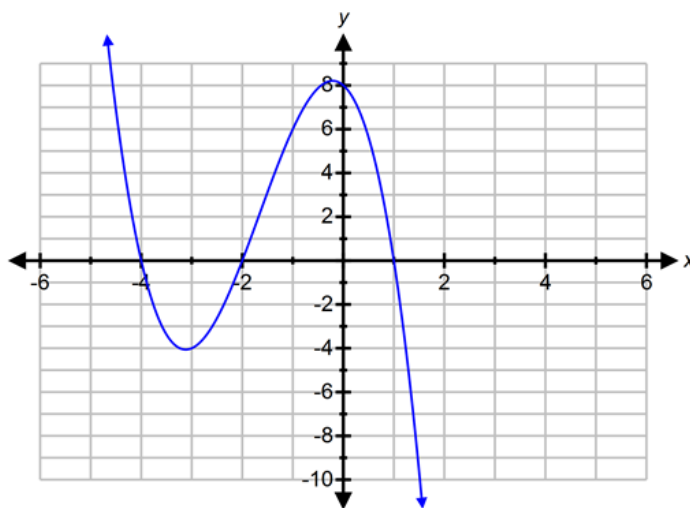


## Lesson 2.1A Background Knowledge of Functions

### Example 2

Graph  $y = -x^3 - 5x^2 - 2x + 8$

└→ x-intercepts  
relative maximum  
relative minimum

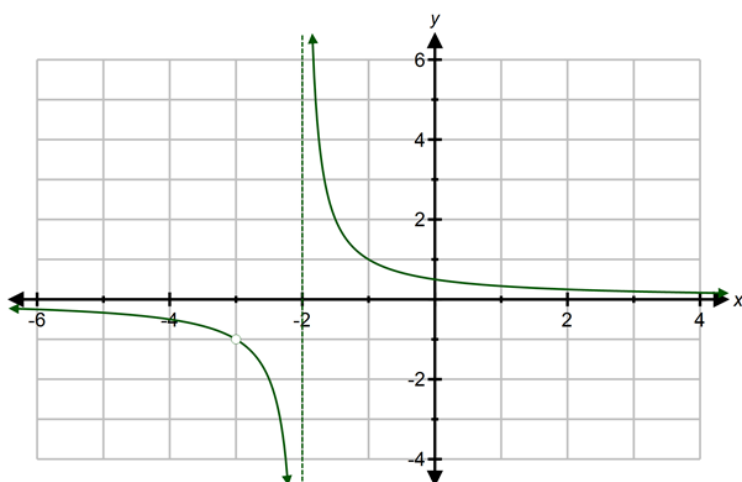


## Rational Functions

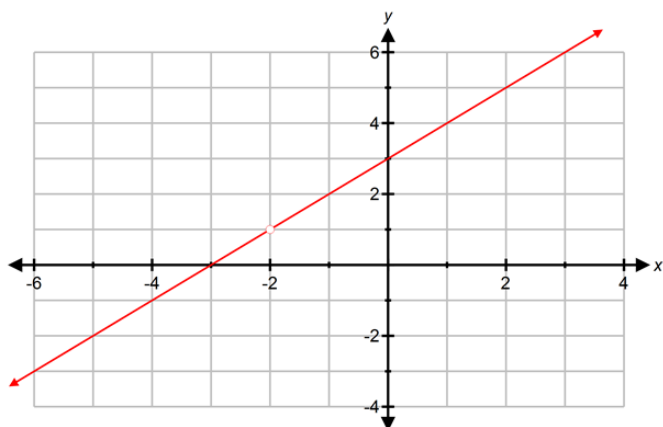
### Non-Permissible Values

↳ The domain of a quotient  $h(x) = \frac{f(x)}{g(x)}$  is restricted for values of  $x$  where  $g(x) = 0$ .

Non-Permissible Values 
 ↗ vertical asymptote  
 ↘ point of discontinuity



$$y = \frac{x+3}{x^2+5x+6}$$



$$y = \frac{x^2+5x+6}{x+2}$$

Example 3

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(i) State the non-permissible values of  $h(x) = \frac{2x + 8}{x^2 + 3x - 4}$

(ii) What do these values represent?

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Your Turn 

(i) State the non-permissible values of  $h(x) = \frac{x^2 + 3x + 2}{2x^2 + 3x - 2}$

(ii) What do these values represent?

