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## MODULE 4.2 - RATIONAL FUNCTIONS

## LEARNING OBJECTIVES

In this section, you will:

- Use arrow notation.
- Solve applied problems involving rational functions.
- Find the domains of rational functions.
- Identify vertical asymptotes.
- Identify horizontal asymptotes.


## USING ARROW NOTATION

- State the definition of vertical asymptote.
- State the definition of horizontal asymptote.


## SOLVING APPLIED PROBLEMS INVOLVING RATIONAL FUNCTIONS

- State the definition of rational function.


## IDENTIFYING VERTICAL ASYMPTOTES OF RATIONAL FUNCTIONS

- State the definition of removable discontinuities of rational functions.

How To... Given a rational function, identify any vertical asymptotes of its graph.


## IDENTIFYING HORIZONTAL ASYMPTOTES OF RATIONAL FUNCTIONS

- State the definition of horizontal asymptotes of rational functions.
- State the definition of intercepts of rational functions.


## MODULE 4.2 - CLASS EXAMPLES

1. $f(x)=\frac{x-1}{x+2}$
2. $p(x)=\frac{x^{2}+4}{x^{2}-2 x-8}$
3. $g(x)=\frac{x}{x^{2}-9}$
4. $f(x)=\frac{3 x-4}{x^{3}-16 x}$
5. $h(x)=\frac{x}{x^{2}-x}$
6. $g(x)=\frac{94-2 x^{2}}{3 x^{2}-12}$
7. $w(x)=\frac{(x-1)(x+3)(x-5)}{(x+2)^{2}(x-4)}$
8. $h(x)=\frac{2 x^{2}+x-1}{x-4}$
