

Now

In Chapter 8, you will apply the big ideas listed below and reviewed in the Chapter Summary on page 602. You will also use the key vocabulary listed below.

Big Ideas

- 1 Graphing rational functions
- 2 Performing operations with rational expressions
- 3 Solving rational equations

KEY VOCABULARY

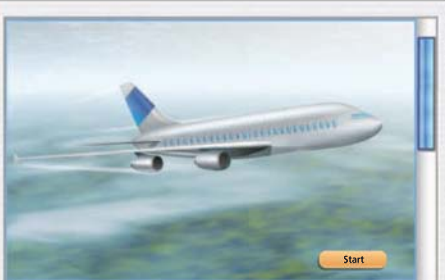
- inverse variation, p. 551
- constant of variation, p. 551
- joint variation, p. 553
- rational function, p. 558
- simplified form of a rational expression, p. 573
- complex fraction, p. 584
- cross multiplying, p. 589

Why?

You can use rational functions to model real-life situations. For example, you can model the time it takes to travel across the United States and back in an airplane.

Animated Algebra

The animation illustrated below for Exercise 41 on page 587 helps you answer this question: How does the time required to fly from New York to Los Angeles and back depend on the speeds of the airplane and the jet stream?



The winds of the jet stream affect the overall speed of an airplane.

$$T = \frac{d}{a-j} + \frac{d}{a+j}$$

Flight	d	a	j	$\frac{d}{a-j}$	$\frac{d}{a+j}$	T
New York - Los Angeles						
Los Angeles - Dallas						
Dallas - Miami						
York - Chicago						
Chicago - Dallas						

Identify the correct highlighted section of the equation below that denotes the speed of the airplane when it is traveling against the jet stream.

$$T = \frac{d}{a-j} + \frac{d}{a+j}$$

The speed of the airplane against the jet stream is represented by: Check Answer

Examine how flying with the wind or against the wind affects the flight time.

Animated Algebra at classzone.com

Other animations for Chapter 8: pages 554, 559, 568, and 602