Name

Class

Date



**Practice**

Simplifying Rational Expressions

**Simplify each expression. State any excluded values.**

**1.**  **2.**  **3**. 

**4.**  **5.**  **6.** 

**7.**  **8**.  **9.** 

**10.**  **11**.  **12**. 

1. The length of a rectangle is 3*h +* 2 and the width is 9*h* + 6. What is the ratio of its length to its width? Simplify your answer.
2. The length of a rectangle is *x* − 2. Its area is 2*x −* 4. What is a simplified expression for the width?
3. The area of a rectangle is *x*2 – 9. Its width is *x −* 3. What is a simplified expression for the length?
4. **Writing** Why must the denominator of a rational expression not be equal to 0?
5. The area of a rectangle is 16*a*2. The length is 2*a*. What is a simplified expression for the the width?
6. Are the given factors opposites? Explain.

**a.** 3*d −* 7; 7 − 3*d*

**b. −** *y +* 4; *y +* 4

**c.** 27 + 8*x*; − 27 − 8*x*

**19.** The ratio of the area of a small circle to a larger circle is . Simplify the expression.

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**Practice** (continued)



Simplifying Rational Expressions

1. A pilot packed two rectangular suitcases for her trip to Hawaii. Both hold the same volume of clothes. Her green suitcase has a length of 2*y +* 4, a width of *y +* 1, and a height of 4*y*. Her blue suitcase has a length of 8*y*2 − 6*y* and a width of 2*y*. What is a simplified expression for the height of the blue suitcase? Show your work.
2. The numerical area of a circle with radius *c* is equal to the numerical volume of a sphere with radius *S*. What is the radius of the sphere in terms of *c*? Show your work. (Area circle = πr2. Volume sphere = ).

**Simplify each expression. State any excluded values.**

**22.**  **23.** 

**24.**  **25**. 

**26.**  **27.** 

**28.** Your brother’s car is traveling 40  faster than your car. During the time it takes you to go 150 mi, your brother goes 450 mi. Make a table with the information and find the speeds.