6.R.2 Exercises

Concept Check

True/False. Determine whether each statement is true or false. If a statement is false, explain how it can be changed so the statement will be true. (**Note:** There may be more than one acceptable change.)

1. Taking the reciprocal of a fraction changes the sign of any exponent in the fraction.

2. For an exponent to refer to -7 as the base, -7 must be in parentheses.

3. When simplifying an expression with exponents, the rules for exponents must be used in a specific order or the answer will vary.

4. The expression -8^2 simplifies to -64.

Practice

Use the rules for exponents to simplify each of the expressions. Assume that all variables represent nonzero real numbers.

5. $\left(2^{-3}\right)^{-2}$

6. $-3\left(7xy^2\right)^0$

7. $-2\left(3x^5y^{-2}\right)^{-3}$

8. $\left(\dfrac{x}{2}\right)^3$

9. $\left(\dfrac{2x^2y}{y^3}\right)^{-4}$

10. $\left(\dfrac{5a^4b^{-2}}{6a^{-4}b^3}\right)^{-2}\left(\dfrac{5a^3b^4}{2^{-2}a^{-2}b^{-2}}\right)^3$