Name _____ Date _____

**Additional Exercises 5.7**
**Form I**
Negative Exponents and Scientific Notation

Write the expression with positive exponents only. Then simplify, if possible.

1. $-3^{-2}$ 1. _____

2. $3^{-1}+2^{-1}$ 2. _____

3. $\dfrac{3^{-3}}{4^{-2}}$ 3. _____

4. $\dfrac{1}{2x^{-2}}$ 4. _____

Simplify each exponential expression. Assume that variables represent nonzero real numbers.

5. $x^{-8}\cdot x^{3}$ 5. _____

6. $2x^{-1}$ 6. _____

7. $\dfrac{6p^{-6}}{5}$ 7. _____

8. $x^{4}y^{-10}$ 8. _____

9. $\dfrac{8}{x^{-2}}$ 9. _____

Name _____ Date _____

Write the number in decimal notation without the use of exponents.

10. $1.25\times10^{3}$ 10. _____

11. $3.957\times10^{-2}$ 11. _____

12. $2.0351\times10^{-4}$ 12. _____

13. $4.7\times10^{0}$ 13. _____

Write each number in scientific notation.

14. 34.18 14. _____

15. 19,000 15. _____

16. 0.0014 16. _____

Perform the indicated computations. Write the answers in scientific notation.

17. $\dfrac{6\times10^{5}}{2\times10^{3}}$ 17. _____

18. $(1\times10^{2})(2\times10^{-3})$ 18. _____

19. $(3\times10^{2})^{2}$ 19. _____

20. A bacterium measures 0.000000251 centimeters. Rewrite the number in scientific notation. 20. _____

Name _____ Date _____

**Additional Exercises 5.7**
**Form II**
Negative Exponents and Scientific Notation

Write the expression with positive exponents only. Then simplify, if possible.

1. $-(4)^{-2}$ 1. _____

2. $\frac{1}{23} \cdot \frac{1}{(4)^{-2}}$ 2. _____

3. $\frac{(4)^{-2}}{(5)^{-2}}$ 3. _____

4. $\frac{1}{3x^{-3}}$ 4. _____

Simplify each exponential expression. Assume that variable represent nonzero real numbers.

5. $x^{-7} \cdot x^{5}$ 5. _____

6. $\frac{12x^{2}}{6x^{6}}$ 6. _____

7. $\frac{5p^{-7}}{2p^{3}}$ 7. _____

8. $(x^{-1}y^{6})^{-2}$ 8. _____

9. $\frac{(3x^{4})^{3}}{x^{15}}$ 9. _____

Name _____ Date _____

Write the number in decimal notation without the use of exponents.

10. $1.18\times10^{7}$ 10. _____

11. $7.36\times10^{-4}$ 11. _____

12. $1.0483\times10^{-7}$ 12. _____

13. $4.48\times10^{0}$ 13. _____

Write the number in scientific notation.

14. 697.35 14. _____

15. 65,000,000 15. _____

16. 0.00007948 16. _____

Perform the indicated computations. Write the answers in scientific notation.

17. $\dfrac{8\times10^{-9}}{2\times10^{-6}}$ 17. _____

18. $(4\times10^{3})(2\times10^{-6})$ 18. _____

19. $(2\times10^{3})^{2}$ 19. _____

20. A bacterium measures 0.0000000896 centimeters. Rewrite the number in scientific notation. 20. _____

Name _____ Date _____

**Additional Exercises 5.7**
**Form III**
Negative Exponents and Scientific Notation

Write the expression with positive exponents only. Then simplify, if possible.

1. $-6^{-3}$ 1. _____

2. $8^{-1}+11^{-1}$ 2. _____

3. $\dfrac{5^{-3}}{7^{-3}}$ 3. _____

4. $\dfrac{1}{8x^{-6}}$ 4. _____

Simplify each exponential expression. Assume that variables represent nonzero real numbers.

5. $x^{-11}\cdot x^{9}$ 5. _____

6. $\dfrac{18x^{5}}{3x^{9}}$ 6. _____

7. $\dfrac{7p^{-9}}{3p^{2}}$ 7. _____

8. $(x^{-3}y^{4})^{-2}$ 8. _____

9. $\dfrac{(5x^{6})^{3}}{x^{12}}$ 9. _____

Name _____ Date _____

Write the number in decimal notation without the use of exponents.

10. $3.05\times10^{4}$ 10. _____

11. $9.18\times10^{-3}$ 11. _____

12. $1.1936\times10^{-8}$ 12. _____

13. $5.7\times10^{0}$ 13. _____

Write the number in scientific notation.

14. 1045.7 14. _____

15. 29,000,000,000 15. _____

16. 0.0000057 16. _____

Perform the indicated computations. Write the answers in scientific notation.

17. $\dfrac{16\times10^{-8}}{4\times10^{-6}}$ 17. _____

18. $(6\times10^{4})(3\times10^{-2})$ 18. _____

19. $(5\times10^{-3})^{4}$ 19. _____

20. A bacterium measures 0.00000077 centimeters. Rewrite the number in scientific notation. 20. _____