

6.1**Practice A**

In Exercises 1–6, evaluate the expression.

1. $(-3)^0$

2. 7^0

3. 3^{-5}

4. $(-5)^{-3}$

5. $\frac{3^{-2}}{9^0}$

6. $\frac{6^{-1}}{-5^0}$

In Exercises 7–18, simplify the expression. Write your answer using only positive exponents.

7. x^{-6}

8. z^0

9. $7x^{-4}y^0$

10. $12f^0g^{-9}$

11. $\frac{3^{-2}a^0}{b^{-2}}$

12. $\frac{6^0tu^{-5}}{2^5}$

13. $\frac{4^7}{4^4}$

14. $\frac{(-3)^6}{(-3)^3}$

15. $(-8)^3 \cdot (-8)^3$

16. $7^{-4} \cdot 7^4$

17. $(h^3)^4$

18. $(t^{-2})^6$

19. A camera lens magnifies an object 10^3 times. The length of an object is 10^{-4} centimeter. What is its magnified length?

In Exercises 20–22, simplify the expression. Write your answer using only positive exponents.

20. $(-2y)^5$

21. $(3d)^{-3}$

22. $\left(\frac{5}{b}\right)^{-3}$

In Exercises 23 and 24, simplify the expression. Write your answer using only positive exponents.

23. $\left(\frac{3x^2y^{-3}}{2x^{-3}y^2}\right)^3$

24. $\left(\frac{-6a^{-9}b^5}{2a^2b^{-4}}\right)^4$

In Exercises 25 and 26, evaluate the expression. Write your answer in scientific notation and standard form.

25. $(1.2 \times 10^7)(4 \times 10^{-2})$

26. $\frac{3.9 \times 10^8}{1.3 \times 10^3}$

6.1 Practice B

In Exercises 1–6, evaluate the expression.

1. 5^{-4}

2. $(-5)^{-4}$

3. $\frac{7^{-1}}{-8^0}$

4. $\frac{8^{-1}}{(-4)^0}$

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

6. $\frac{6^{-2}}{(-1)^{-4}}$

In Exercises 7–21, simplify the expression. Write your answer using only positive exponents.

7. $\frac{7^{-2}m^0}{n^{-4}}$

8. $\frac{(-9)^0 j^{-1}k^{-4}}{2^0}$

9. $\frac{5^{-2}w^0}{y^{-10}}$

10. $\frac{t^{-5}}{8^{-2}s^{-3}}$

11. $\frac{3^{-2}a^{-1}}{9^{-1}b^{-2}c^0}$

12. $\frac{17x^0y^{-8}}{4^{-2}z^{-6}}$

13. $(p^6)^3$

14. $(q^{-4})^5$

15. $5^3 \cdot 5^{-7}$

16. $-4 \cdot (-4)^{-2}$

17. $\frac{x^7}{x^4} \cdot x^2$

18. $\frac{v^5 \cdot v^3}{v^2}$

19. $(-8t^2)^3$

20. $\left(-\frac{q^4}{5}\right)^{-3}$

21. $\left(\frac{1}{3h^5}\right)^{-4}$

In Exercises 22 and 23, simplify the expression. Write your answer using only positive exponents.

22. $\left(\frac{5x^{-4}y^3}{2x^2y^0}\right)^2 \cdot \left(\frac{4xy}{y^3}\right)^2$

23. $\left(\frac{2a^0b^{-4}}{b^3}\right)^4 \cdot \left(\frac{a^3b^{-2}}{3b^4a^{-4}}\right)^3$

In Exercises 24 and 25, evaluate the expression. Write your answer in scientific notation and standard form.

24. $(4.3 \times 10^{-4})(6 \times 10^7)$

25. $\frac{1.2 \times 10^{-3}}{4.8 \times 10^{-10}}$

26. Find x and y when $b^x b^y = b^8$ and $b^{4x} b^{-2y} = b^2$. Explain how you found your answer.