

Simplify each expression.

4.  $8^{-4}$

8.  $\frac{2^{-1}}{2^{-5}}$

12.  $-7^{-2}$

16.  $\frac{9}{2^{-1}}$

20.  $(3.7)^0$

24.  $\frac{7^{-2}}{4^{-1}}$

Evaluate each expression

for  $a = -2$  and  $b = 6$ .

28.  $-b^{-3}$

32.  $(-b)^{-2}$

36.  $(3ab)^{-2}$

Simplify each expression.

40.  $m^2n^{-9}$

44.  $\frac{6}{r^{-5}s^{-1}}$

48.  $-7p^{-5}q^{-3}r^2$

52.  $\frac{a^{-2}b^{-1}}{cd^{-3}}$

Write each number as a power of 10 using a negative exponent.

56.  $\frac{1}{1,000,000,000}$

Write each expression as a decimal.

60.  $6 \cdot 10^{-4}$

Evaluate each expression for  $m = 4$ ,  $n = 5$ , and  $p = -2$ .

64.  $n^p$

68.  $mn^p$

72.  $-n^{-m}$

Write each number in standard notation.

4.  $7.1 \times 10^{-4}$

8.  $9.407 \times 10^{-5}$

12.  $0.016 \times 10^5$

16.  $0.095 \times 10^{-1}$

Write each number in scientific notation.

20. 0.000005008

24. 1095 millionths

28.  $0.031 \times 10^{-4}$

32. 5,000,900,000,000

Simplify. Write each answer using scientific notation.

38.  $5(7 \times 10^{-2})$

41.  $3(1.2 \times 10^{-4})$

44.  $3(4.3 \times 10^{-4})$

Simplify each expression.

3.  $n^{-6} \cdot n^{-9}$

6.  $(3p^{-15})(6p^{11})$

9.  $(-2d^3e^3)(6d^4e^6)$

12.  $\frac{1}{n^7 \cdot n^{-5}}$

15.  $2^3 \cdot 2^2$

18.  $(7p^4)(5p^9)$

21.  $4^3 \cdot 4^2$

24.  $(-3xy^6)(3.2x^5y)$

27.  $\frac{1}{t^{-5} \cdot t^{-3}}$

30.  $5^{-6} \cdot 5^4$

Simplify each expression. Write each answer in scientific notation.

33.  $(9.5 \times 10^{-4})(2 \times 10^{-5})$

36.  $(5 \times 10^7)(4 \times 10^3)$

39.  $(6.1 \times 10^9)(8 \times 10^{14})$

42.  $(9 \times 10^{12})(0.3 \times 10^{-18})$

45.  $(7 \times 10^6)(4 \times 10^9)$

48.  $(5 \times 10^8)(2.6 \times 10^{-16})$

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