

1. Write each power with a positive exponent.

- a) 2^{-3} b) 4^{-1} c) 10^{-7}
 d) 9^{-8} e) 1^{-4} f) $(0.5)^{-6}$
 g) $(-7)^{-6}$ h) $(-2)^{-3}$ i) $\frac{1}{2^{-3}}$
 j) $\frac{1}{4^{-2}}$ k) $\frac{1}{5^{-4}}$ l) $\frac{1}{(-3)^{-5}}$

2. Write in exponential form.

- a) $\frac{1}{8 \times 8}$ b) $\frac{1}{7 \times 7 \times 7}$ c) $\frac{1}{9 \times 9 \times 9 \times 9}$

3. Write in exponential form.

- a) $\frac{1}{4}$ b) $\frac{1}{27}$ c) $\frac{1}{64}$ d) $\frac{1}{243}$

Evaluate.

4. 5^0 5. 2^6 6. 3^{-1}
 7. 4^{-2} 8. $(-1)^7$ 9. 10^{-3}
 10. $(-6)^0$ 11. 8^{-1} 12. $(-3)^{-4}$
 13. $(-10)^{-3}$ 14. $(0.1)^{-3}$ 15. $(-1)^{-6}$
 16. $\frac{1}{3^{-1}}$ 17. $\frac{1}{4^{-2}}$ 18. $\frac{1}{(-3)^{-1}}$

Evaluate.

59. $(\frac{1}{3})^{-1}$ 60. $(\frac{-1}{5})^2$ 61. $(\frac{-7}{8})^0$
 62. $(\frac{1}{10})^{-2}$ 63. $(\frac{-2}{3})^{-3}$ 64. $(\frac{-3}{4})^{-2}$

83. Evaluate.

- a) $(\frac{1}{2})^0$ b) $(\frac{2}{3})^{-3}$ c) $(\frac{1}{3})^2 (\frac{-1}{2})^{-3}$
 d) $(\frac{4}{5})^0 - (\frac{3}{4})^2$ e) $(\frac{4}{5})^6 (\frac{4}{5})^{-8}$ f) $(\frac{5}{3})^3 + (\frac{5}{3})^5$

Answers

1. Write each power with a positive exponent.

a) $2^{-3} = \frac{1}{2^3}$ b) $4^{-1} = \frac{1}{4}$ c) $10^{-7} = \frac{1}{10^7}$
 d) $9^{-8} = \frac{1}{9^8}$ e) $1^{-4} = \frac{1}{1^4}$ f) $(0.5)^{-6} = \frac{1}{(0.5)^6}$ $(\frac{1}{2})^{-6} = 2^6$
 g) $(-7)^{-6} = \frac{1}{(-7)^6}$ h) $(-2)^{-3} = \frac{1}{(-2)^3}$ i) $\frac{1}{2^{-3}} = 2^3$
 * j) $\frac{1}{4^{-2}} = 4^2$ k) $\frac{1}{5^{-4}} = 5^4$ l) $\frac{1}{(-3)^{-5}} = (-3)^5$

2. Write in exponential form.

a) $\frac{1}{8 \times 8} = 8^{-2}$ b) $\frac{1}{7 \times 7 \times 7} = 7^{-3}$ c) $\frac{1}{9 \times 9 \times 9 \times 9} = 9^{-4}$

3. Write in exponential form.

a) $\frac{1}{4} = 4^{-1}$ b) $\frac{1}{27} = 3^{-3}$ c) $\frac{1}{64} = 4^{-3}$ d) $\frac{1}{243} = 3^{-5}$
 or 8^{-2}

Evaluate.

4. $5^0 = 1$ 5. $2^6 = 64$ 6. $3^{-1} = \frac{1}{3}$
 7. $4^{-2} = \frac{1}{16}$ 8. $(-1)^7 = -1$ 9. $10^{-3} = \frac{1}{1000}$
 10. $(-6)^0 = 1$ 11. $8^{-1} = \frac{1}{8}$ 12. $(-3)^{-4} = \frac{1}{81}$
 $-\frac{1}{1000} \rightarrow$ 13. $(-10)^{-3} = -\frac{1}{1000}$ 14. $(0.1)^{-3} = \frac{1}{0.001} = 1000$ 15. $(-1)^{-6} = 1$
 16. $\frac{1}{3^{-1}} = 3$ 17. $\frac{1}{4^{-2}} = 16$ 18. $\frac{1}{(-3)^{-1}} = -3$

Evaluate.

59. $(\frac{1}{3})^{-1} = 3$ 60. $(\frac{-1}{5})^2 = \frac{1}{25}$ 61. $(\frac{-7}{8})^0 = 1$
 62. $(\frac{1}{10})^{-2} = 100$ 63. $(\frac{-2}{3})^{-3} = -\frac{27}{8}$ 64. $(\frac{-3}{4})^{-2} = \frac{16}{9}$

83. Evaluate.

a) $(\frac{1}{2})^0 = 1$ b) $(\frac{2}{3})^{-3} = \frac{27}{8}$ c) $(\frac{1}{3})^2 (\frac{-1}{2})^{-3} = \frac{1}{9} \times \frac{-8}{1} = -\frac{8}{9}$
 d) $(\frac{4}{5})^0 - (\frac{3}{4})^2 = 1 - \frac{9}{16} = \frac{16}{16} - \frac{9}{16} = \frac{7}{16}$ e) $(\frac{4}{5})^6 (\frac{4}{5})^{-8} = (\frac{4}{5})^{-2} = \frac{25}{16}$ f) $(\frac{5}{3})^3 \div (\frac{5}{3})^5 = (\frac{5}{3})^{-2} = \frac{9}{25}$

Answers