

Enrichment 8-1

Operations Involving Exponents

Solve the problems at the top of the page. Locate the answer at the bottom of the page and place the corresponding letter in the appropriate blank to spell out the name of a famous mathematician. Not all answers will be used. This mathematician is the person considered to be the inventor of logarithms. The mathematician published a table of logarithms in the early 1600s. Logarithms are useful in solving exponential functions.

1 2 3 4 5 6 7 8 9 10

Problems

- | | |
|-----------------------------|---------------------------|
| 1. $3 \cdot 2^{-2}$ | 2. xy^{-4} |
| 3. $(2ab)^{-3}$ | 4. $(-b)^{-4}$ |
| 5. $(b^{-2})^2$ | 6. $5 \cdot 10^{-2}$ |
| 7. $\frac{3m^{-2}}{n^{-4}}$ | 8. $6^0 \cdot 9^{-1}$ |
| 9. $-6 \cdot 2^{-4}$ | 10. $-\frac{a^{-5}}{b^5}$ |

Answers

- | | | |
|-----------------------|------------------------|------------------------|
| A. $\frac{1}{20}$ | B. $\frac{1}{xy^4}$ | C. -9 |
| D. 0 | E. $-\frac{3}{8}$ | F. $\frac{3m}{n^2}$ |
| G. $-\frac{1}{ab}$ | H. $\frac{1}{8a^3b^3}$ | I. $\frac{1}{9}$ |
| J. $\frac{3}{4}$ | K. $\frac{1}{6ab^3}$ | L. $-\frac{a}{b}$ |
| M. $\frac{1}{36}$ | N. $\frac{1}{b^4}$ | O. $\frac{x}{y^4}$ |
| P. $\frac{3n^4}{m^2}$ | Q. -15 | R. $-\frac{1}{a^5b^5}$ |
| S. -20736 | T. b^4 | U. $-\frac{3}{4}$ |
| V. $\frac{n^4}{3m^2}$ | W. -54 | X. $\frac{3}{8}$ |
| Y. -15000 | Z. $-\frac{1}{b^4}$ | |