

# Powers and Exponents

## Guided Practice

Write each product using an exponent. (Examples 1 and 2)

1.  $8 \times 8 \times 8 =$  \_\_\_\_\_

2.  $1 \times 1 \times 1 \times 1 \times 1 =$  \_\_\_\_\_

Show your work →

Write each power as a product of the same factor. Then find the value. (Examples 3–5)

3.  $\left(\frac{1}{7}\right)^3 =$   
\_\_\_\_\_

4.  $2^5 =$   
\_\_\_\_\_

5.  $1.4^2 =$   
\_\_\_\_\_

6. Coal mines have shafts that can be as much as  $7^3$  feet deep. About how many feet deep into Earth's crust are these shafts? (Example 6)

## Independent Practice

Write each product using an exponent. (Examples 1 and 2)

1.  $6 \times 6 =$   
\_\_\_\_\_

2.  $1 \times 1 \times 1 =$   
\_\_\_\_\_

3.  $5 \times 5 \times 5 \times 5 \times 5 =$   
\_\_\_\_\_

Show your work →

4.  $12 \times 12 =$   
\_\_\_\_\_

5.  $27 \times 27 \times 27 \times 27 =$   
\_\_\_\_\_

6.  $15 \times 15 \times 15 =$   
\_\_\_\_\_

Write each power as a product of the same factor. Then find the value. (Examples 3–5)

7.  $6^4 =$   
\_\_\_\_\_

8.  $0.5^3 =$   
\_\_\_\_\_

9.  $\left(\frac{1}{8}\right)^2 =$   
\_\_\_\_\_

10. **CCSS Identify Repeated Reasoning** A byte is a basic unit of measurement for information storage involving computers. (Example 6)

a. A kilobyte is equal to  $10^3$  bytes. Write  $10^3$  as a product of the same factor. Then find the value.

---

---

b. A megabyte is equal to  $10^6$  bytes. Write  $10^6$  as a product of the same factor. Then find the value.

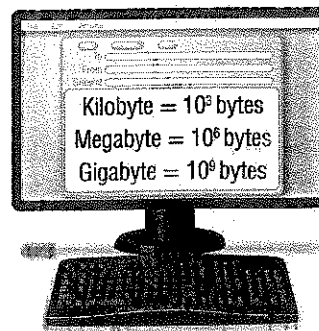
---

---

c. How many more bytes of information are in a gigabyte than a megabyte?

---

---



Find the value of each expression.

11.  $0.5^4 + 1 =$

---

12.  $3.2^3 \times 10 =$

---

13.  $10.3^3 + 8 =$

---



### Standardized Test Practice

17. Jalisa is packing a moving truck. She can pack each layer with 7 boxes long and 7 boxes wide. The truck height is 7 layers tall. How many boxes can she pack in the truck?

- (A) 7 boxes                      (C) 49 boxes  
(B) 21 boxes                    (D) 343 boxes

27. **CCSS Be Precise** The baseball infield at the right has an area of  $90^2$  square feet. What is the area of the infield?

---

28. Last week Bakery Marvels baked  $5^5$  muffins. How many muffins did Bakery Marvels bake?

---

29. Luke ran  $3.5^3$  miles in the month of January. How many miles did Luke run in January?

---

