

4-2

Practice

Powers and Exponents

Write each expression using exponents.

1. $11 \cdot 11 \cdot 11$

2. $2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2$

3. 5

4. $(-4)(-4)$

5. $a \cdot a \cdot a \cdot a$

6. $n \cdot n \cdot n \cdot n \cdot n$

7. $4 \cdot 4 \cdot 4$

8. $(b \cdot b)(b \cdot b)(b \cdot b)$

9. $(-v)(-v)(-v)(-v)$

10. $x \cdot x \cdot z \cdot z \cdot z$

11. $2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot t \cdot t$

12. $m \cdot m \cdot m \cdot n \cdot p \cdot p$

Express each number in expanded form.

13. 13

14. 1006

15. 17,629

16. 897

Evaluate each expression if $x = 3$, $y = -2$, and $z = 4$.

17. y^x

18. 51^0

19. z^2

20. x^2

21. 9^x

22. $z^2 \cdot 2^2$

23. y^5

24. $z^2 - y^4$

25. $x^2 + y^2 + z^2$

26. $z^2 - x^2$

FAMILY TREE For Exercises 27 and 28, refer to the following information.

When examining a family tree, the branches are many. You are generation “now.” One generation ago, your 2 parents were born. Two generations ago your 4 grandparents were born.

27. How many great-grandparents were born three generations ago?

28. How many “great” grandparents were born ten generations ago?