



Name _____

Exponents

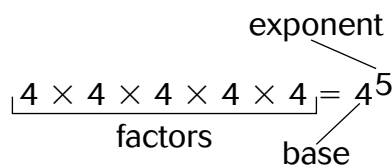
R 4-1

You can use an exponent to tell how many times a number is used as a factor.

The number is called the base. The exponent is called the power of the base.

You can read 4^5 as "four to the fifth power." To find 4^5 , multiply $4 \times 4 \times 4 \times 4 \times 4$.

In general, $n^4 = n \times n \times n \times n$.



Evaluate 3^4 .

$$3^4 = \underbrace{3 \times 3 \times 3 \times 3}_{4 \text{ factors}} = 81$$

Evaluate $n^3 + 2$ for $n = 5$.

$$n^3 + 2$$

$$5^3 + 2$$

Substitute 5 for n .

$$5 \times 5 \times 5 + 2$$

Using the rules for order of operations, evaluate 5^3 first.

$$125 + 2$$

$$127$$

Add.

$$n^3 + 2 = 127 \text{ when } n = 5.$$

Use exponents to write each expression.

1. $3 \times 3 \times 3 \times 3$ _____

2. $t \times t \times t$ _____

3. 7×7 _____

4. $0.5 \times 0.5 \times 0.5 \times 0.5 \times 0.5$ _____

Evaluate.

5. 2^5 _____

6. 3^4 _____

7. 5^3 _____

8. 19^1 _____

9. 0.6^2 _____

10. 6^3 _____

11. 0.2^4 _____

12. 10^5 _____

13. 0.1^2 _____

Evaluate each expression when $n = 4$.

14. $n^3 + 20$ _____

15. $5n^2$ _____

16. $(n - 1)^3$ _____

17. $(n + 6)^3$ _____

18. $10n^2$ _____

19. $(n - 2)^5$ _____

20. $n^3 - 60$ _____

21. $25n$ _____

22. $(9 - n)^2$ _____

23. $2n^2$ _____

24. $(7 - n)^2$ _____

25. $n^2 + 3n$ _____