

6th Grade
Feb 17, 2021

Today we will:

- begin Unit 6 on Expressions
- new table of contents
- review video notes
- begin HW

Test: Barrett, Zac

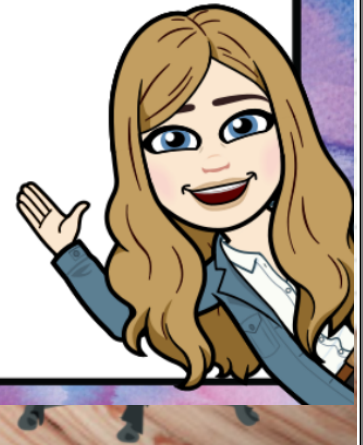
-Binder check:
Barrett, Lexi, Zac



HOMEWORK:

Pg 437 WS

ALEKS assignment: 60
min and 5 topics due
next Monday by 11:59pm



CHAPTER 6 LESSON 1

Powers and Exponents

Factors are what you are multiplying

$$6 \cdot 3 = 18$$

↑
factors

$$2 \cdot 3 \cdot 4 = 24$$

↑
factors

- When your factors are the same, you can simplify it by writing it with an **exponent**

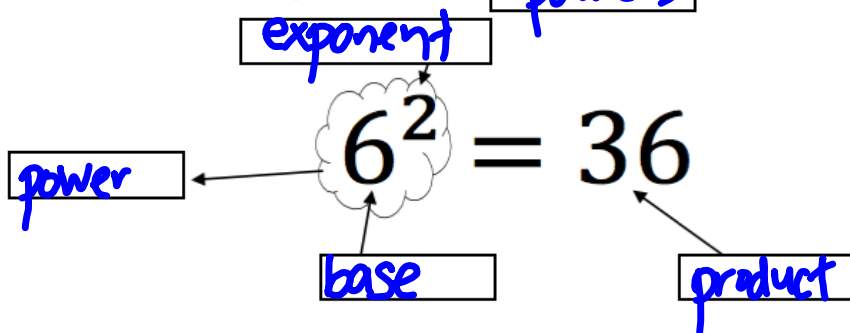
$$6 \cdot 6 = 36$$

$$6^2 = 36$$

$$2 \cdot 2 \cdot 2 \cdot 2 = 16$$

$$2^4 = 16$$

- Numbers written with exponents are called **powers**



POWERS	WORDS
5^2	five squared or five to the second power
4^3	four cubed or four to the third power
3^4	three to the fourth power

(power)

Exponential Form	1^3	6^4	9^5
Expanded Form	$1 \cdot 1 \cdot 1$	$6 \cdot 6 \cdot 6 \cdot 6$	$9 \cdot 9 \cdot 9 \cdot 9 \cdot 9$
Standard Form <i>(product)</i>	1	1296	59,049

QUICK CHECK!

Your name: _____

1. Write 7^5 in expanded form. $7 \cdot 7 \cdot 7 \cdot 7 \cdot 7$
2. Write 8^6 in expanded form. $8 \cdot 8 \cdot 8 \cdot 8 \cdot 8 \cdot 8$
3. Write $7 \times 7 \times 7 \times 7$ as a power. 7^4

4. Find 4^3 . 64

5. Find 9^2 . 81

$$10^6 = 1,000,000$$

$$10^4 = 10,000$$

$$\left(\frac{1}{4}\right)^2 = \frac{1}{4} \times \frac{1}{4}$$

$$(0.5)^2 = 0.5 \times 0.5 = \underline{\underline{.25}}$$

QUICK CHECK!



HOMEWORK



Name _____

Unit ____ Lesson ____ Due Date ____

work _____



Go online for Step-by-Step Solutions

Independent Practice

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

1. $6 \times 6 =$



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

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

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. **MP 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? _____

10^9

→ subtract



Extra Practice

Write each product using an exponent.

18. $6 \times 6 \times 6 = 6^3$



The factor 6 is used
3 times.
The base is 6.
The exponent is 3.

19. $10 \times 10 \times 10 =$

20. $32 \times 32 \times 32 \times 32 =$

21. $9 \times 9 =$

22. $7 \times 7 \times 7 \times 7 \times 7 \times 7 =$

23. $13 \times 13 \times 13 \times 13 \times 13 =$

Write each power as a product of the same factor. Then find the value.

24. $3^7 =$

25. $0.06^2 =$

26. $\left(\frac{1}{4}\right)^3 =$

27. **MP 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? _____