Name_____ Date_____ Period_____

LESSON 6-3 · SESSION 2 · PRACTICE · FORM A

Finding the Value of a Power

Learning target – I can find the value of a power by multiplying the base the number of times the exponent shows. · 6.EE.A.1

REMEMBER

- Write the **expanded form**, then multiply one factor at a time.
- $4^3 = 4 \times 4 \times 4 = 64$, **not** $4 \times 3 = 12$.
- Decimals and fractions work the same way: $0.3^2 = 0.3 \times 0.3 = 0.09$.

WORKED EXAMPLE

Find the value of 3^4.

Step 1 Expand: $3^4 = 3 \times 3 \times 3 \times 3$.

Step 2 Multiply: $3 \times 3 = 9$, $9 \times 3 = 27$, $27 \times 3 = 81$.

Step 3 Check: I used 3 as a factor 4 times.

Answer $\mathbf{3^4 = 81}$

WORDS **evaluate** *(evaluar)* · **squared** *(al cuadrado)* · **cubed** *(al cubo)* · **expanded form** *(forma desarrollada)*

PRACTICE

show your work · label units

1. Find the value of each power.

a. 12^2 = ____ **b.** 3^3 = ____ **c.** 2^4 = ____

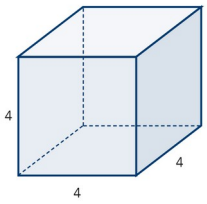
d. 11^2 = ____ **e.** 1.2^2 = ____ **f.** $(1/3)^2$ = ____

2. Power Table. A science club makes a table of powers of 2. Complete it. Then tell what each value is multiplied by to get the next one.

Power	Expanded form	Value
$\mathbf{2^1}$		
$\mathbf{2^2}$		
$\mathbf{2^3}$		
$\mathbf{2^4}$		

Multiply by_____

3. Storage Cube. A storage cube has edges of 4 units, so its volume is 4^3 cubic units. Find the volume.



Hint *Use 4 as a factor three times.*

Show your work.

Answer_____ cubic units

4. Plant Cuttings. A count of plant cuttings is multiplied by 5 each week for 4 weeks, so it is 5^4. Evaluate it.

Hint *5 × 5 = 25, then keep multiplying by 5.*

Show your work.

Value_____

5. Poster Claim. A classroom poster says $7^2 = 14$. Justify or correct the poster.

Hint *Expand the power into factors first.*

Show your work.

Value_____

6. Which Is Biggest? Evaluate 2^5, 5^2 and 3^3. Order them from least to greatest.

Hint *Evaluate each power before comparing.*

Show your work.

Order_____

7. Decimal Powers. Evaluate each power.

Hint *Count decimal places: 0.6 × 0.6 has two.*

a. 0.6^2 = _____

b. 1.5^2 = _____

8. Growing Cells. A culture of cells triples every hour. It starts with 1 cell.

a. Write the number of cells after 4 hours as a power of 3, then evaluate. _____ cells

b. How many cells after 5 hours? _____ cells

c. How many more cells after 5 hours than after 4 hours? _____ cells

FIND THE ERROR

explain the mistake, then fix it

9. Teo's Work. Teo evaluated 10^3. He wrote 10 × 3 = 30 and said the value is 30. Explain his mistake. Then find the correct value.

TEST PRACTICE

choose the best answer

10. 2^5 equals –

A 10 **B** 25 **C** 32 **D** 7

11. A number to the 2nd power is said to be –

A squared **B** cubed **C** doubled **D** halved

SELF-CHECK CODE *find your answer · copy its letter into that problem's box · spell a math word*

2.25 R	64 S	81 E	0.36 A	162 D	20 X	49 U	12 Z	14 J	625 Q

#3	#4	#5	#7a	#7b	#8a	#8c

CHECK YOURSELF	☐ I can do this on my own	☐ I need a little help	☐ I have a question about #___