Name_____ Date_____ Period_____

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

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. 9^2 = ____ **b.** 2^3 = ____ **c.** 5^2 = ____

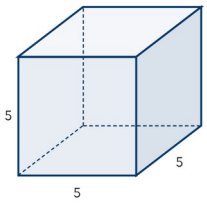
d. 13^2 = ____ **e.** 1.3^2 = ____ **f.** $(2/5)^2$ = ____

2. **Power Table.** A garden club makes a table of powers of 3. Complete it. Then tell what each value is multiplied by to get the next one.

Power	Expanded form	Value
3^1		
3^2		
3^3		
3^4		

Multiply by_____

3. Storage Cube. A storage cube has edges of 5 units, so its volume is 5^3 cubic units. Find the volume.



Hint *Use 5 as a factor three times.*

Show your work.

Answer_____ cubic units

4. Plant Cuttings. A count of plant cuttings is multiplied by 6 each week for 3 weeks, so it is 6^3. Evaluate it.

Hint *6 × 6 = 36, then multiply by 6 again.*

Show your work.

Value_____

5. Poster Claim. A classroom poster says $8^2 = 16$. Justify or correct the poster.

Hint *Expand the power into factors first.*

Show your work.

Value_____

6. Which Is Biggest? Evaluate 3^4, 4^3 and 2^7. 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: 0.4 × 0.4 has two.*

a. 0.4^2 = _____

b. 2.5^2 = _____

8. Tile Stages. A tile design has 4 times as many tiles at each new stage. It starts with 1 tile.

a. Write the number of tiles after 3 stages as a power of 4, then evaluate. _____ tiles

b. How many tiles after 4 stages? _____ tiles

c. How many more tiles after 4 stages than after 3 stages? _____ tiles

FIND THE ERROR

explain the mistake, then fix it

9. Malik's Work. Malik evaluated 9^3. He wrote 9 × 3 = 27 and said the value is 27. Explain his mistake. Then find the correct value.

TEST PRACTICE

choose the best answer

10. 10^3 equals –

A 30 **B** 13 **C** 100 **D** 1,000

11. 6^2 equals –

A 12 **B** 8 **C** 36 **D** 66

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

15 Q	16 X	18 Z	6.25 O	64 C	216 A	125 F	256 R	192 S	0.16 T

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

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