

**17. Assessment Focus**

a) Write as repeated multiplication and in standard form.

i)  $4^3$     ii)  $-4^3$     iii)  $-(-4^3)$     iv)  $(-4^3)$

b) Which products in part a are positive?  
Why? Which products are negative? Why?

c) Write as repeated multiplication and in standard form.

i)  $4^2$

ii)  $-4^2$

iii)  $-(-4^2)$

iv)  $(-4^2)$

d) Which products in part c are positive?

Why? Which products are negative?

Why?

e) Write other sets of powers like those in parts a and c. Explain how you know if each product is positive or negative before you write the power in

42) |  $-$   $+$   $\times$  | standard form.

**18. a)** Is the value of  $-3^5$  different from the value of  $(-3)^5$  or  $(-3^5)$ ?  
What purpose do the brackets serve?

**b)** Is the value of  $-4^6$  different from the value of  $(-4)^6$  or  $(-4^6)$ ?  
What purpose do the brackets serve?

- 19.** a) When does a negative base in a power produce a negative product?  
Give 3 examples.
- b) When does a negative base in a power produce a positive product?  
Give 3 examples.

**20.** Write each number as a power with base 2.  
Explain your method.

a) 4

b) 16

c) 64

d) 256

e) 32

f) 128

**21. a)** Write each number as a power in as many ways as possible.

i) 16

ii) 81

iii) 256

b) Find other numbers that can be written as a power in more than one way. Show your work.

**22.** a) How are the powers in each pair the same?

How are they different?

i)  $2^3$  or  $3^2$           ii)  $2^5$  or  $5^2$

iii)  $3^4$  or  $4^3$           iv)  $5^4$  or  $4^5$

b) In part a, which is the greater power in each pair? Explain how you know.

**23.** Without evaluating all the powers, write them in order from greatest to least:

$$3^5, 5^2, 3^4, 6^3$$

Explain your strategy.



## Master 2.17

## Extra Practice 1

## Lesson 2.1: What Is a Power?

1. Identify the base of each power.

a)  $6^3$

b)  $2^7$

c)  $(-5)^4$

d)  $-7^0$

Base:

Exponent:

2. Use repeated multiplication to show why
- $3^5$
- is not the same as
- $5^3$
- .

3. Complete this table.

Power	Base	Exponent	Repeated Multiplication	Standard Form
$4^4$				
$(-10)^3$				
	-6	2		
			$1 \times 1 \times 1 \times 1 \times 1$	

4. Write each product as a power, then evaluate.

a)  $6 \times 6$

b)  $3 \times 3 \times 3 \times 3 \times 3 \times 3$

c)  $10 \times 10 \times 10 \times 10$

d)  $-(8 \times 8 \times 8)$

e)  $(-8)(-8)(-8)$

f)  $-(-8)(-8)(-8)$

5. Write each power as repeated multiplication, then evaluate.

a)  $7^5$

b)  $4^6$

c)  $-9^3$

d)  $(-5)^5$

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6. Evaluate each power. For each power:

- Are the brackets needed?
- If your answer is yes, what purpose do the brackets serve?

a)  $(-6)^5$       b)  $-(6)^5$       c)  $-(-6)^5$       d)  $(-6^5)$

7. Predict whether each answer is positive or negative, then evaluate.

a)  $(-3)^2$       b)  $(-3)^3$       c)  $-3^2$       d)  $-(-3)^3$

8. Is the value of  $-2^4$  different from the value of  $(-2)^4$ ? Explain.

9. Stamps are sold in a 10 by 10 sheet. The total value of a sheet of stamps is \$60.00.

a) Express the number of stamps as a power and in standard form.

b) Draw a picture to represent this power.

c) What is the value of one stamp?