

Introduction to Exponents

1. Identify the coefficient, the base, and the exponent [power] for each of the following:

- a. $(-b)^2$
- b. $-b^2$
- c. b^2

2. Complete the table by expanding the bases.

	Base 2	Base 3	Base 5
Second Power			
Third Power			
Fourth Power			

3. Expand and then evaluate each of the following:

- a. $(3)^2$
- b. -3^4
- c. 3^3
- d. $(7)^5$
- e. -1^5
- f. $-(9^4)$
- g. -2^5
- h. 5^5
- i. (3^2)
- j. -4^3
- k. $-(3^2)$

4. Evaluate each of the following:

4a. $(-3)^2$

4b. -3^4

4c. $(-3)^3$

4d. $(-7)^2$

4e. -1^2

4f. $-(-6^3)$

4g. -2^5

4h. $-(4^4)$

4i. $(-2)^3$

4j. $-(4)^3$

4k. $-(-2^2)$

Answers

	Coefficient	Base	Exponent
1a)	1	-b	2
1b)	-1	b	2
1c)	1	b	2

2.	Base 2	Base 3	Base 5
2nd power	$2^2 = 2 \times 2 = 4$	$3^2 = 3 \times 3 = 9$	$5^2 = 5 \times 5 = 25$
3rd power	$2^3 = 2 \times 2 \times 2 = 8$	$3^3 = 3 \times 3 \times 3 = 27$	$5^3 = 5 \times 5 \times 5 = 125$
4th power	$2^4 = 2 \times 2 \times 2 \times 2 = 16$	$3^4 = 3 \times 3 \times 3 \times 3 = 81$	$5^4 = 5 \times 5 \times 5 \times 5 = 625$

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|--|---|---------|----------|
| 3a. $3 \times 3 \rightarrow 9$ | 3g. $(-1) \times 2 \times 2 \times 2 \times 2 \times 2 \rightarrow -32$ | 4a. 9 | 4f. 216 |
| 3b. $(-1) \times 3 \times 3 \times 3 \times 3 \rightarrow -81$ | 3h. $5 \times 5 \times 5 \times 5 \times 5 \rightarrow 3125$ | 4b. -81 | 4g. -32 |
| 3c. $3 \times 3 \times 3 \rightarrow 27$ | 3i. $3 \times 3 \rightarrow 9$ | 4c. -27 | 4h. -256 |
| 3d. $7 \times 7 \times 7 \times 7 \times 7 \rightarrow 16807$ | 3j. $(-1) \times 4 \times 4 \times 4 \rightarrow -64$ | 4d. 49 | 4i. -8 |
| 3e. $(-1) \times 1 \times 1 \times 1 \times 1 \times 1 \rightarrow -1$ | 3k. $(-1) \times 3 \times 3 \rightarrow -9$ | 4e. -1 | 4j. -64 |
| 3f. $(-1) \times 9 \times 9 \times 9 \times 9 \rightarrow -6561$ | | | 4k. 4 |