

Mathematics 9

Section 2.3 - Order of Operations with Powers

We have experience dealing with the order of operations, and now we will look at how the order of operations is used specifically with exponents.

Example 1

$$(6-8)^3$$

EVALUATE INSIDE THE BRACKETS

$$(-2)^3$$

APPLY EXPONENT

$$(-2)(-2)(-2) = -8$$

Example 2

$$5 + 4^2$$

APPLY EXPONENT

$$5 + 16$$

ADD

$$21$$

General rules:

- i) WHEN WE HAVE BRACKETS, WORK FROM THE INSIDE OUT
- ii) FOLLOW BEDMAS CAREFULLY
- iii) YOU CAN'T ADD NUMBERS THAT CONTAIN EXPONENTS (EVALUATE 1ST)
- iv) WATCH YOUR NEGATIVE SIGNS

Example 3

$$9^2 \div [9 \div (-3)]^2$$

BRACKETS 1ST

$$9^2 \div [(-3)]^2$$

EVALUATE EXPONENTS

$$81 \div 9$$

DIVIDE

$$9$$

Example 4

$$(11^3 + 5^2)^0 + (4^2 - 2^4)$$

↑
RECOGNIZETHAT THE 1ST BRACKETS WILL BE 1.

$$1 + (4^2 - 2^4)$$

EVALUATE EXPONENTS INSIDE BRACKETS

$$1 + (16 - 16)$$

SUBTRACT WITHIN BRACKETS

$$1 + 0$$

1

P. 66 #3acej, 4aceg, 5acfg, 7, 8, 11, 20ab, 21ab, 22