

unit 1 preview

* Exponents

$$3^4$$

↑ exponent
↑ base

$$3^4 = 3 \cdot 3 \cdot 3 \cdot 3 = 81$$

Anything to the zero power is 1.

$$2^0 = 1$$

$$7^0 = 1$$

$$100^0 = 1$$

* order of operations

$$2 \cdot (8-4)^2 - (3+2)$$

$$2 \cdot \begin{matrix} \checkmark 2 \\ 4 \end{matrix} - \begin{matrix} \checkmark \\ 5 \end{matrix}$$

$$2 \cdot \begin{matrix} \checkmark \\ 4 \times 4 \\ 16 \end{matrix} - 5$$

$$\begin{matrix} \checkmark \\ 32 \end{matrix} - 5$$

$$\begin{matrix} \checkmark \\ \boxed{27} \end{matrix}$$

~~G~~
~~E~~
~~MD~~
AS
→

Exponents

* Write in expanded form

$$\textcircled{1} \quad 3^6 \begin{array}{l} \leftarrow \text{exponent} \\ = 3 \cdot 3 \cdot 3 \cdot 3 \cdot 3 \cdot 3 \\ \uparrow \\ \text{base} \end{array}$$

$$\textcircled{2} \quad y^3 = y \cdot y \cdot y$$

$$\textcircled{3} \quad 2^4 y^2 = 2 \cdot 2 \cdot 2 \cdot 2 \cdot y \cdot y$$

* Write in exponential notation

$$\textcircled{1} \quad 4 \cdot 4 \cdot 4 \cdot 4 \cdot 4 \cdot 4 = 4^6$$

$$\textcircled{2} \quad y \cdot y \cdot y \cdot y = y^4$$

$$\textcircled{3} \quad 5 \cdot 5 \cdot z \cdot z \cdot z = 5^2 z^3$$

* Evaluate

$$\textcircled{1} \quad 2^3 = 2 \cdot 2 \cdot 2$$

$$\quad \quad \quad \downarrow$$
$$\quad \quad \quad 4 \cdot 2$$

$$\quad \quad \quad \downarrow$$
$$\quad \quad \quad \boxed{8}$$

$$\textcircled{2} \quad 21^1 = \boxed{21}$$

$$\textcircled{3} \quad 15^0 = \boxed{1}$$

$$\textcircled{4} \quad \left(\frac{1}{3}\right)^2 = \left(\frac{1}{3}\right)\left(\frac{1}{3}\right) = \boxed{\frac{1}{9}}$$

Order of Operations

G Grouping symbols

E Exponents

MD Multiplication & Division

AS Addition & Subtraction

$$\textcircled{1} 21 \div (2+1) \cdot 5 - 2^3$$

$$21 \div 3 \cdot 5 - 2^3$$

2 · 2 · 2

$$21 \div 3 \cdot 5 - 8$$

7 · 5 - 8

$$35 - 8$$

$$\boxed{27}$$

Sara bought 3 books for \$5 each. Sales tax for all 3 books was \$2 total. Write an expression to show how much Sara paid in all.

multiplication

$$(3 \cdot 5) + 2$$

books tax

G
E
MD
AS

$$3 \cdot 5 + 2$$

$$15 + 2$$

$$\boxed{\$17}$$