

UNIT 5: COMMON ASSESSMENT REVIEW KEY

Name: Key
 Unit 8B: Expressions and Scientific Notation

- Write the following expression in expanded form: 8^5 $8 \cdot 8 \cdot 8 \cdot 8 \cdot 8$
- Write the following expression in exponential form:
 $x \cdot x \cdot x \cdot y \cdot y \cdot y \cdot y \cdot y \cdot z$ $x^3 y^5 z$
- Simplify the expression: $5a^4b^2 \cdot 3ab^6$ $(5 \cdot 3)(a^4 \cdot a^1)(b^2 \cdot b^6)$
 $15a^5b^8$
- Simplify: $(a^4b)^3$ $a^4b \cdot a^4b \cdot a^4b$
 $a^{12}b^3$
- Simplify: $(x^4y^6z)^3 (x^4y^3)^0$ $x^{12}y^{18}z^3$
 $\frac{1}{5^3}$
- Rewrite the expression using a positive exponent: 5^{-3}
- The state of Colorado covers about 1.04×10^5 square miles. The Indian Ocean covers about 2.808×10^7 square miles. How many times bigger than Colorado is the Indian Ocean? (Write your answer in scientific notation and standard form.)
 $\frac{2.808 \times 10^7}{1.04 \times 10^5}$ 2.7×10^2 and 270
- Write the number in scientific notation: $0.000\ 000\ 24$ 2.4×10^{-7}
dec \rightarrow neg exp
- Write the number in scientific notation: $5,030,000,000$ 5.03×10^9
- Write the number in standard form: 9.3×10^6 6-1=5
9,300,000
- Write the number in standard form: 8×10^{-6}
0.000008

0.000008

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- 12) Compare the numbers below using an inequality symbol to place in the .

$$7 \times 10^{-5} > 9 \times 10^{-6} \quad (7 \times 10^{-5}) > (0.000\ 009)$$

$$0.00007 > 0.000009 \quad 0.00007 > 9 \times 10^{-6}$$

- 13) Calculate the product: $(3 \times 10^8)(5 \times 10^6)$ *too big!* 1.5×10^{14} 1.5×10^{15}
 (Your answer must be in scientific notation.) *$1.5 \times 10^4 \times 10^4$*

- 14) Calculate the quotient: $\frac{2 \times 10^2}{8 \times 10^9}$ *2-9 too small* 0.25×10^{-7} 2.5×10^{-8}
 (Your answer must be in scientific notation.) *$2.5 \times 10^{-1} \times 10^{-7}$*

- 15) The population in 2017 in Brazil is approximated to be 2.1×10^8 while the population in Mexico is approximated to be 130,000,000. Calculate the approximate total population for the two countries. (Write your answer in scientific notation and standard form.)

$$\frac{21,000,000}{\text{Brazil}} \text{ and } \frac{1.3 \times 10^8}{\text{Mexico}}$$

- 16) The beach on Waikiki Beach in Hawaii is disappearing which is devastating to the tourism industry. To try to save the beach, 2.7×10^3 cubic yards of sand were imported to try to save the beach. If each cubic yard weighs approximately 3×10^3 pounds, about how many pounds of sand were deposited?

$$(3 \times 10^3)(2.7 \times 10^3) \quad \underline{8.1 \times 10^6}$$

- 17) State whether each sentence below is true or false. Justify your reasoning for each.

Part A: $5^3 \times 5^4 = 25^7$ **False!**
 $5^3 \cdot 5^4 = 5^7$ *When multiplying powers with same base, keep the base and add the exponents!*

Part B: $\frac{8^6}{8^2} = 8^4$ **True**
When dividing powers with the same base, keep the base and subtract the exponents