EIS Rayongwittayakom School

MA22202 Lesson 1 – Exponent (TEACHER SUCHERA)

Name: _____

Class: M 2/_____Number:_____

Worksheet 6 Exponents

Scientific Notation

Real numbers expressed in **scientific notation** have the form

$$a \times 10^{n}$$

where n is an integer and $1 \leq a < 10$. This form is particularly useful when the numbers are very large or very small.

For example,

$9{,}460{,}000{,}000{,}000\,\text{m} = 9.46 \times 10^{15}\,\text{m}$ *One light year*

$0.000000000025\,\text{m} = 2.5 \times 10^{-11}\,\text{m}$ *Radius of a hydrogen atom*

Rewrite this numbers in standard form (decimal form).

1) 563.4×10^{5} =.....

2) 0.054×10^{6} =.....

3) 0.00634×10^{5} =.....

Rewrite this numbers in scientific notation.

1) 2,500 =.....$\times 10^{___}$

2) 38,720 =.....$\times 10^{___}$

3) 82,400 =.....$\times 10^{___}$

4) 396,000 =.....$\times 10^{___}$

5) 12,680,000 =.....$\times 10^{___}$

6) 510,000,000 =.....$\times 10^{___}$

7) 0.05 =.....$\times 10^{___}$

8) 0.00064 =.....$\times 10^{___}$

9) 0.00000234 =.....$\times 10^{___}$

10) 0.000000745 =.....$\times 10^{___}$

11) 0.000000846 =.....$\times 10^{___}$

12) 0.000000000932 =.....$\times 10^{___}$

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Example 1: Multiply: $(4.2\times10^{-5})(0.3\times10^{12})$.

Answer .....$\times10^{___}$

Example 2: Divide: $(3.24\times10^{8}) \div (9.0\times10^{-3})$.

Answer .....$\times10^{___}$

Example 3: The speed of light is approximately 6.7×10^{8} miles per hour. Express this speed in miles per second.

Answer .....$\times10^{___}$

Evaluate the expression. Write the result in scientific notation.

1) $(3\times10^{8})\times(7\times10^{9})$ = ...$\times10^{___}$

2) $(2.2\times10^{-8})\times(3.6\times10^{23})$ = ...$\times10^{___}$

3) $(4\times10^{-4})\times(1.2\times10^{15})$ = ...$\times10^{___}$

4) $(2.5\times10^{-7})\times(2.5\times10^{22})$ = ...$\times10^{___}$

5) $(0.4\times10^{-11})(-22\times10^{12})(0.3\times10^{25})$ = ...$\times10^{___}$

6) $(a\times10^{-13})(b\times10^{-29})(c\times10^{35})$ = ...$\times10^{___}$

7) $\dfrac{(8\times10^{-9})}{(4\times10^{-7})}$ = ...$\times10^{___}$

LIVEWORKSHEETS

8) $\dfrac{3.6\times10^{-5}}{0.6\times10^{-2}}$ = ...$\times10^{\text{——}}$

9) $\dfrac{(4\times10^{-8})(5.5\times10^{-6})}{(1.1\times10^{-12})}$ = ...$\times10^{\text{——}}$

10) $\dfrac{(2.4\times10^{-4})(4\times10^{-7})}{8\times10^{-11}}$ = ...$\times10^{\text{——}}$

11) $\dfrac{2.5\times10^{7}}{0.5\times10^{-11}}$ = ...$\times10^{\text{——}}$

12) $\dfrac{0.000062}{0.002}$ = ...$\times10^{\text{——}}$

13) $\dfrac{0.00000056\times10^{-4}}{0.0008\times10^{-5}}$ = ...$\times10^{\text{——}}$

14) $\dfrac{(0.01\times10^{-11})(5.5\times10^{18})}{(1.1\times10^{-7})}$ = ...$\times10^{\text{——}}$

15) $\dfrac{(3.4\times10^{14})\div(0.2\times10^{-5})}{(1.7\times10^{-5})}$ = ...$\times10^{\text{——}}$

16) $\dfrac{(12.5\times10^{6})\times(3.9\times10^{15})}{6.5\times10^{13}}$ = ...$\times10^{\text{——}}$

17) $\dfrac{0.016\times0.0028}{0.0064}$ = ...$\times10^{\text{——}}$

Solve the problem.

1. The mass of earth is 5.97×10^{24} kilograms and the mass of the moon is 7.35×10^{22} kilograms. By what factor is the mass of earth greater than the mass of the moon?

Answer .....$\times10^{\text{——}}$

LIVEWORKSHEETS