Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Math period \_\_\_\_\_\_\_\_ Unit 17 Review Packet/Frascatore

**Show all work!**

1) Which of the following are written in scientific notation? Circle all that apply.

1.5 x 109 2.487 x 107 12.3 x 104 0.45 x 103

15.5 x 10-8 4 x 10-2 7.35478743 x 10-1 0.0045 x 10-4

Explain, in words (and complete sentences!) why the ones you did not circle are not written in scientific notation.

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2) Write the following numbers in order from least to greatest.

 5.42 x 104 5.42 x 10-8 5.42 x 102

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Explain, in words, (and complete sentences!) how you arrived at your answers above.

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|  |  |
| --- | --- |
| **Number** | **Powers of 10** |
| 0.00315 | 3.15 x 10-3 |
| 0.0315 | 3.15 x 10-2 |
| 0.315 | 3.15 x 10-1 |
| 3.15 | 3.15 x 100 |
| 31.5 | 3.15 x 101 |
| 315 | 3.15 x 102 |
| 3,150 | 3.15 x 103 |

3) Use the table to find a pattern.

 (A) The exponents that are less than 0

 cause the number to increase.

 (B) As the exponent of 10 decreases, the

 number decreases.

 (C) As the exponent of 10 increases, the

 number decreases.

 (D) The exponents that are greater than 0

 cause the number to become positive.

4) Suppose your calculator display shows 2.67E + 7. Express this result in scientific notation.

5) Suppose your calculator display shows 9.34E - 3. Express this result in scientific notation.

6) Write each of the given numbers in scientific notation.

707,000 1,212,000 48.7 8,120

7) Express each of the given numbers in standard form.

2.4 x 105 3.1 x 103 4 x 107 3.115 x 102

8) John wrote the following numbers on his paper:

 3.5 x 106 7 x 105

The first number is how many times bigger than the second number?

9) Write these numbers in order from greatest to least.

2.45 x 105 3 x 106 1.3 x 104

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10) Express each of the given numbers below in scientific notation.

0.068 0.0042 0.128 0.0008

11) Write each of the given numbers in standard form.

7.12 x 10-6 2.38 x 10-1 6 x 10-5 1.234 x 10-2

12) Write these numbers in order from greatest to least.

2.45 x 10-3 3 x 10-1 1.3 x 10-7

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13) Subtract and write your answer in scientific notation.

 10.1 x 107 – 4.8 x 107

14) Add and write your answer in scientific notation.

 5.2 x 104 + 2.8 x 104

15) Simplify each expression below. Write your answers in scientific notation.

(2 x 10-3)(9 x 10-2) (1.2 x 10-3)(2.54 x 10-7) (4 x 10-3)(7 x 1010)

16) Divide. Express each answer in scientific notation.

16 x 10-6 50 x 108

2 x 10-4 2 x 10-2

17) A research study reports that an average person purchases 190 granola bars per year. If there are 250 million people in the country, how many granola bars are purchased by the whole country in one year? Express your answer in scientific notation.

[You may use calculators].