

# Feb 12, 2019

- 1) go over answers SD Worksheet #13-24
- 2) Scientific Notation

Quiz Friday on SD, Converting Units and Scientific Notation!!

## Warm-Up

Complete each of the following calculations giving the correct number of SD in your answer:

- 1)  $12.2 - 3.45 + 8.670 =$  correct SD
- 2)  $20.0 + 33.34 - 12.45 =$  correct S
- 3)  $12.3 \times 14 =$  correct S
- 4)  $30 \div 5.2 =$  correct S

**Add:**

13)  $12.250\text{cm} + 9.2\text{cm} + 7.40\text{cm} = 28.85\text{cm} = 28.9\text{cm}$

14)  $1.500\text{g} + 4.34\text{g} + 0.006\text{g} = 5.846\text{g} = 5.85\text{g}$

15)  $30.63\text{cm} + 6.6\text{cm} + 3.786\text{cm} = 41.06\text{cm} = 41.0\text{cm}$

**Subtract:**

16)  $44.373\text{mg} - 0.2\text{mg} = 44.173\text{mg} = 44.2\text{mg}$

17)  $18.527\text{g} - 9.2156\text{g} = 9.3114\text{g} = 9.311\text{g}$

18)  $7.00\text{mg} - 1.467\text{mg} = 5.533\text{g} = 5.53\text{mg}$

**Multiply**

19)  $0.444\text{cm} \times 52.562\text{cm} = 23.3\text{cm}^2$

20)  $13000\text{cm} \times 11.54\text{cm} = 15,0000\text{cm}^2$

21)  $7.02\text{m} \times 0.143\text{m} \times 555.5\text{m} = 558\text{m}^3$

**Divide**

22)  $9.8\text{g} / 8.66\text{ml} = 1.1\text{g/ml}$

23)  $19.8\text{g} / 2.081\text{ml} = 9.51\text{g/ml}$

24)  $2.50\text{mi} / 0.04\text{hr} = 60\text{mi/hr}$

Scientists have developed a shorter method to express very large numbers. This method is called **scientific notation**. Scientific Notation is based on powers of the base number 10.

123 000 000 000

Write this number in scientific notation by following the steps below.

Step 1: Put the decimal after the first digit.

1.23000000000

Step 2: Find the exponent by counting the number of places from the decimal to the end of the number. Because you moved to the left the exponent is positive.

1.23000000000  
11 10 9 8 7 6 5 4 3 2 1

Step 3: Drop the zeros to get the coefficient. Multiply it by the base (which is always 10) and include the exponent that you found in step 2.

$1.23 \times 10^{11}$

If the number is less than 1

Step 1: Put the decimal so that the number is in the ones place

0.00345 becomes 0.003.45

Step 2: Find the exponent by counting from the current decimal place to where you put the decimal. Because you moved to the right the decimal is negative this time.

0.003.45  
1 2 3

Step 3: Drop the zeros to get the coefficient. Multiply it by the base (which is always 10) and include the exponent that you found in step 2.

$3.45 \times 10^{-3}$

# Try This

Put the following numbers in Scientific Notation

1) 56,000,000,000

2) 2,305,000,000,000

3) 0.00000173

4) 0.000000502



## Scientific Notation and Converting Units WS Part B