## WARMUP $1 /\left(0.0026 \times 10^{4}\right)$

Divide: $15.12 \div 4.2$
Multiply: $6 x^{3} \cdot 8 x^{2}$
Divide: $\frac{177 x^{74}}{3 x^{49}}$

## QUIZ FOLDERS:

- In your folder, you should have:
- Fractions, Decimals, Roots Quiz
- Unit 1 Test
- Unit 2 Quiz
- Linear Equations and Graphs Quiz
- Linear Relationships Test
- Solving Equations Quiz
- Solving Equations Test
- Systems of Equations Test
+ the new one we are adding
- I went through and made a list of all the quizzes everyone is missing
- You need to find these quizzes. However, DO NOT put them back in your folder. Turn them into the tray. I will then check them off and put them in the folders myself.


## P. 55 (1-7, 13, 24-26)

3,160
0.00011
0.0000252
$4.3 \times 10^{4}$
$7.2 \times 10^{-3}$
6) $9.01 \times 10^{-5}$
7) Arctic, Southern,

Indian, Atlantic,
Pacific
10) <
11) <
$1.2 \times 10^{6}$ is closer because it is equal to $1,200,000$, and $1.2 \times 10^{5}$ is only equal to 120,000 , which is much farther away from one million.
24) Hydrogen, Carbon Oxygen, Silver, Gold
25) $2.2 \times 10^{3} ; 310,000$; $3.1 \times 10^{7} ; 216,000,000$
6) $4.56 \times 10^{-3}, 4.56 \times 10^{-2}$, $4.56 \times 10^{2}, 4.56 \times 10^{3}$

## GOING OVER EXPONENTS OUIZ

- Retake Deadline - Two weeks from today
(Friday, Feb. 9)
- Must do corrections on a corrections sheet + extra practice



## WITH VARIABLES.o.

1. $a^{6} \cdot a^{2}(a \cdot a \cdot a \cdot a \cdot a \cdot a) \cdot(a \cdot a)=a^{8}$
2. $\frac{a^{6}}{a^{2}} \quad \frac{a \cdot a \cdot a \cdot a \cdot a \cdot a}{a \cdot a}=a^{4}$
3. $a^{6}+a^{2}$
$(a \cdot a \cdot a \cdot a \cdot a \cdot a)+(a \cdot a)$ : No way to simplify this 4. $a^{6}-a^{2}$
$(a \cdot a \cdot a \cdot a \cdot a \cdot a)-(a \cdot a):$ No way to simplify this


SCIENTIFIC NOTATION WORKS THE SAMAE WAY.

$$
\begin{gathered}
\left(4 \times 10^{3}\right)\left(2 \times 10^{4}\right) \\
=(4 \times 10 \times 10 \times 10)(2 \times 10 \times 10 \times 10 \times 10) \\
=\mathbf{8} \times \mathbf{1 0}^{7}
\end{gathered}
$$

## Multiplying in Scientific Notation

- Multiply the Coefficients
- Keep the base (10)
- Add the exponents!


## SCIENTIIFIC NOTATION WORKS THE

SAME WAY.

$$
\begin{gathered}
\frac{9 \times 10^{5}}{3 \times 10^{2}} \\
=\frac{9 \times 10 \times 10 \times 10 \times 10 \times 10}{3 \times 10 \times 10} \\
=3 \times 10^{3}
\end{gathered}
$$

Dividing in Scientific Notation

- Divide the Coefficients
- Keep the base (10)
- Subtract the exponents!

Adding \& Subtracting in Scientific Notation

- No shortcut: convert both to standard notation, then add or subtract
(Exception: When both numbers have the same exponent!)


## AN EXCEPTION...

You cannot combine these:

$$
4 x^{3}+7 x^{2}
$$

However, you can combine these:

$$
\begin{aligned}
& 4 x^{5}+7 x^{5} \\
& =11 x^{5}
\end{aligned}
$$

If the exponents are the same, you can use a shortcut for adding/subtracting scientific notation. (Think of them as "combining like terms")

60,000,000
$+20,000,000$

$$
\begin{gathered}
\left(6 \times 10^{7}\right)+\left(2 \times 10^{7}\right) \\
=8 \times 10^{7}
\end{gathered}
$$

Adding \& Subtracting in Scientific Notation

- No shortcut: convert both to standard notation, then add or subtract
- IF EXPONENTS ARE THE SAME:
- Add/subtract coefficients
- Keep the base AND keep the exponent


## OVERALL MAAN IDEA IN MATH...

- You can multiply or divide anything.
-However, you can only add or subtract things that are like terms.
- Fractions work this way.
- Calculating with variables works this way.
- Scientific notation also works this way!


## TRY THESE:

WRITE YOUR ANSWER IN SCIENTIFIC NOTATION.
Examples

1. $\left(7.4 \times 10^{9}\right)\left(1.2 \times 10^{-3}\right)$
2. $\left(6.5 \times 10^{3}\right)+\left(1.23 \times 10^{5}\right)$
3. $\frac{9.72 \times 10^{81}}{2.7 \times 10^{77}}$
4. $\left(9 \times 10^{5}\right)-\left(2.5 \times 10^{2}\right)$
5. $8.88 \times 10^{6}$
6. $1.295 \times 10^{5}$
7. $3.6 \times 10^{4}$
8. $8.9975 \times 10^{5}$

CLASSWORK (WILL FINISH MONDAY)
ค p. $63(1,2,4,8)$ and
-p. 65 (19, 21, 22)

- No calculator allowed!
-NO WORK SHOWN = NO CREDIT!

