# Final Review 3

Scientific notation -

Move the decimal point in the original number so the new number is between 1 and 10.

* Exactly one digit to the left of the decimal point. (can be 1, but not 10)

Multiply this by a power of 10.

Exponent matches the number of places the decimal point was moved.

positive exponent - large numbers

negative exponent - small numbers

***Examples: Write in scientific notation.***

1. 325,000.
   $3.25 \times 10^5$
2. 0.0041
   $4.1 \times 10^{-3}$
3. 0.520
   $5.2 \times 10^{-1}$
4. 14,000,000,000
   $1.4 \times 10^{10}$

***Write in standard form.***

5. $9.1 \times 10^{-4}$ ← smaller 4 places
   0.00091
6. $2.03 \times 10^7$
   20300000
7. $3 \times 10^{-5}$
   0.00003
8. $1.58 \times 10^4$
   15800

Operations and scientific notation

9. $(3.5 \times 10^{-2})(0.04 \times 10^7)$
   $(3.5 \times 0.04)(10^{-2} \times 10^7)$
   $0.14 \times 10^5$
   $1.4 \times 10^{5-1}$
   $\boxed{1.4 \times 10^4}$
10. $\frac{4.68 \times 10^4}{0.2 \times 10^6}$
    $23.4 \times 10^{-2}$
    $2.34 \times 10^{-2+1}$
    $\boxed{2.34 \times 10^{-1}}$

***TRANSLATE WORD PROBLEMS USING KEYWORDS***

+ → more than, increased by, add, plus, sum, exceeds (=) by (+)

− → less than, decreased by, subtract, minus, difference, diminished by, subtracted from

× → product, multiply, times, of (fraction), twice (2×)

÷ → quotient, divide

= → equals, is, same as, result, equivalent

> → is greater than, is more than, is bigger than

< → is less than, is smaller than

≥ → is greater than or equal to, is at least, minimum

≤ → is less than or equal to, is at most, maximum

***Examples:***

1. *n* decreased by 14 is 17.
   $n - 14 = 17$
2. 5 less than 4 times *x* is -15.
   $4x - 5 = -15$
3. 7 more than *y* is greater than 12.
   $y + 7 > 12$

Transform formulas

This is just like solving equations, but will not always combine as nicely.

Follow the same steps you would follow to solve the same equation with all numbers.

***Example***: $3x - 5 = 13$ vs. $ax - c = d$ (solve for $x$)

$3x = 13 + 5$

$3x = 18$

$x = \frac{18}{3}$

$x = 6$

$ax = d + c$

$x = \frac{d+c}{a}$

# HOMEWORK

Worksheet Final Review #3