

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

Intermediate Algebra – MTH 104  
Class #3

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**Chapter 1.6 Scientific Notation.**

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Any Number in Scientific Notation: \_\_\_\_\_  
\_\_\_\_\_

1. A VERY LARGE or very small number, written in Scientific Notation.

a. 4,506,000 \_\_\_\_\_

b. 0.000754 \_\_\_\_\_

c. 2,450,000,000 \_\_\_\_\_

2. Write the following in Proper Scientific Notation.

a.  $45.67 \times 10^4$  \_\_\_\_\_

b.  $0.0255 \times 10^5$  \_\_\_\_\_

c.  $743.3 \times 10^{-4}$  \_\_\_\_\_

d.  $0.0056 \times 10^{-8}$  \_\_\_\_\_

3. Multiplication and Division of Numbers in Scientific Notation.

a.  $(4.25 \times 10^4)(5.61 \times 10^7)$

b.  $(0.63 \times 10^{-4})(18.0 \times 10^8)$

c.  $\frac{1.65 \times 10^3}{4.25 \times 10^5}$

d.  $\frac{0.0000282}{0.00141}$

4. Addition and Subtraction of Scientific Notation.

a.  $(5.24 \times 10^5) + (4.5 \times 10^{-3})$

b.  $(9.12 \times 10^{-5}) - (4.5 \times 10^{-3})$

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**Chapter 2 Equations and Inequalities**

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**Section 1. Combination of Like Terms**

1. Simplify the Following Expressions, if the expression cannot be simplified, state so.

a.  $11a - 12b - 4a - 8b$

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b.  $b + b^2 + 4b - 5b^2$

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c.  $12\left(\frac{1}{6} + \frac{d}{4}\right) - d$

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d.  $-2(a + 7) - [-3(a - 1) + 5]$

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**Section 2. Solving Linear Equations in One or Two Steps.**

2. As always, it will be our objective in solving equations to \_\_\_\_\_

a.  $17 - x = 11$                       Check

b.  $-3x + 5 = -4$                       Check

**Section 3. Solving Linear Equations When the Variable is on both sides of the Equation and by Combination of Like Terms.**

3. Whenever possible: \_\_\_\_\_

a.  $2x + 3 + x = 9$  Check

b.  $4x - 8 = -4(2x - 3) + 4$  Check

4. Write the following Rational numbers as equivalent fractions with the denominator indicated.

a.  $-4, 9, \frac{2}{3}$  denominator = 6 \_\_\_\_\_

b.  $-3, 5, -\frac{4}{3}$  denominator = 5 \_\_\_\_\_

5. Solve the equation. Wherever possible, leave the answer in fractional form, if it is not an integer.

a.  $\frac{1}{4}(x - 2) = \frac{1}{3}(2x + 6)$  Check

6. Solve and Check:  $\frac{1}{2}x + 2 = \frac{1}{8}x - 1$

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**Chapter 2.2 Problem Solving and Using Formulas.**

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**Section 1. Using a Simple Interest Formula.**

1. Sharon Avery makes a \$5000, 6% loan to her brother, Sam Runde, for a period of 3 years.
  - a. At the end of 3 years, what interest will Sam have to pay?
  - b. At the end of 3 years, what will be the total amount that Sam has paid back?

The Simple Interest formula: \_\_\_\_\_

2. Catherine receives a tax refund of \$1425 and invests this money to help pay for her son's first semester of college. She invests this money in a certificate of deposit at a 3% annual interest rate compounded monthly for 18 months.
  - a. How much will the certificate be worth in 18 months?
  - b. How much interest will it earn in the 18 months?

The compound interest formula is:  $A = p \left( 1 + \frac{r}{n} \right)^{nt}$

3. Cheryl is in the 27% Federal income tax bracket. She is trying to decide whether to invest in tax-free municipal bonds with a rate of 2.24% or in a taxable certificate of deposit with a rate of 3.70%.

Use the Formula:  $T_f = T_a(1 - F)$

When  $T_f$  = The tax-free rate

$T_a$  = The taxable rate

$F$  = The Federal Income Tax Bracket

- a. Determine the taxable rate equivalent to a 2.24% tax-free rate for Sharon
- b. If both investments were for the same period of time, which investment would provide Sharon with the greater return on her investment?

**Section 2. Solving “Literal Equations” - Formula Equations – One Variable “In Terms Of” Another.**

4. Solve  $I = p + prt$  for  $p$ :

5. Solve  $5x - 8y = 16$  for  $y$ :

6. Solve  $2y - 3 = \frac{1}{2}(x + 3y)$  for  $y$ .

7. Solve for  $y$ :  $\frac{x}{6} - \frac{y}{4} = 2$

6. The Perimeter of a rectangle can be calculated using the formula:  $P = 2l + 2w$ . Solve the formula for the width,  $w$ :

7. The formula for the area of a trapezoid is  $A = \frac{1}{2}h(b_1 + b_2)$ . Solve this formula for  $b_2$ .

8. The formula for the conversion of degrees celcius to degrees Fahrenheit is  $C = \frac{5}{9}(F - 32)$ . What is the Fahrenheit equivalent temperature of a celcius temperature of  $30^{\circ}$ ?

9. Solve for x when  $a = 2$ ,  $b = -5$ , and  $c = -12$ :  $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

10. Solve  $F = \frac{mv^2}{r}$  for  $m$ :

**Homework Section:**

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1.5	47 → 59	33, 49, 59, 67, 71, 75, 91, 111, 127
74 → 75	2.1	27, 33, 37, 41, 47, 67, 73, 99, 115
83 → 84	2.2	11, 13, 15, 17, 19, 23, 29, 35, 43, 49, 59