Chemistry Math Videos and Reference Material

Please use the resources below to review mathematical concepts found in chemistry.

1. Many Online videos by MiraCosta Professor Julie Harland: www.yourmathgal.com

2. Text references in red/burgundy and can be found in Math Learning Center in OC and SAN Library

**Graphing Linear Equations: FOR LAB**

Graphing 1: This video is an introduction to the Rectangular Coordinate System and covers the basic vocabulary, definitions, ordered pairs, and how to plot points on the x-y plane.
http://www.youtube.com/watch?v=6oJl1RGbIInk

Algebra: A Combined Approach (Elayn Martin-Gay) 4\textsuperscript{th} Edition Section 3.2

Graphing 3: Covers how to complete ordered pair solutions if the x or y coordinate is given. Also covers how to make a table of ordered pair solutions if the equation is solved for y, how to plot those on the x-y plane and graph the line.  http://www.youtube.com/watch?v=RSmHLAK-ssq

Algebra: A Combined Approach (Elayn Martin-Gay) 4\textsuperscript{th} Edition Section 3.5

Graphing 4: Covers how to make a table of ordered pair solutions if the equation is solved for y, how to plot those on the x-y plane and graph the line. Includes equations with fractions and how to choose convenient values of x in the chart to make computation and graphing points easier.
http://www.youtube.com/watch?v=8OUvFd-jMGY

**Chapter 1: Measurements and Dimensional Analysis**

- **Rounding Off Decimals**
http://www.mathplayground.com/howto_round.html
http://www.ehow.com/video_4754349_round-numbers.html

Pre-Algebra (Elayn Martin-Gay) 5\textsuperscript{th} Edition Section 5.1

- **Word Problems to Mathematical Expressions**
Translating words into algebraic expressions: http://www.youtube.com/watch?v=g6jeSuHYhyY
Translating words to Equations:  http://www.youtube.com/watch?v=kNdOHChnySU

- **Understanding Basic Algebra Word Problems**
Basic Algebra Word Problems 1: http://www.youtube.com/watch?v=GHuXf9KU1k
Basic Algebra Word Problems 2: http://www.youtube.com/watch?v=i9gcZBUc1k
Basic Algebra Word Problems 3: http://www.youtube.com/watch?v=0Z5k2I-0mHo
Checking your calculated answer:

Determining if a number is a Solution to an Equation:  http://www.youtube.com/watch?v=BmzsG2LMUnI

Check Solutions of Equations:  http://www.youtube.com/watch?v=z5g1hotjDts

Percents

Percents Part 2 - How to write a percent as a decimal:  http://www.youtube.com/watch?v=KBtjkblzbrw
Pre-algebra (Elayne Martin-Gay) 5th Edition Section 7.1

Solving Basic Percent Problems Part 1 – Calculate x percent of a value:  
http://www.youtube.com/watch?v=Xa2T0CSP_Qw
Pre-algebra (Elayne Martin-Gay) 5th Edition Section 7.2

Dimensional Analysis

Unit Conversions 1 – linear part 1: an introduction to converting from one unit to another unit.  
http://www.youtube.com/watch?v=OL7liIliMD0

Unit Conversions 2 – linear part 2: second video with more examples showing how to convert from one unit to another unit.  
http://www.youtube.com/watch?v=daVdxGfchWI

Unit Conversions 3 – square units – area: how to convert from square units to other square units; deals with area.  
http://www.youtube.com/watch?v=lKguj4goNT8

Unit Conversions 4 – cubic units – volume: how to convert from cubic units to other cubic units; deals with volume.  
http://www.youtube.com/watch?v=Fe5LyVW0vRg

Exponents (definition and simplification methods as applied to Dimensional Analysis)

5V1: Exponents 1-definition, meaning and evaluating
Shows how to evaluate problems b^n with positive exponents, but where base may be negative. Explains the difference when negative sign is in or out of the parentheses.  
http://www.youtube.com/watch?v=AneubQTnoL4

5V3: (Multiplying Exponents): Exponents 3-Product Rule for Exponents  
http://www.youtube.com/watch?v=ijajaVnVQKY

5V4: (Dividing Exponents): Exponents 4 - Quotient Rule and Zero Exponent; Develops the Quotient Rule for Exponents and the meaning of a zero exponent.  
http://www.youtube.com/watch?v=VLJTxjPUOA
Chemistry Math Videos and Reference Material

5V5: (Distribution of exponent to quantity) : Exponents 5 - Power Rule
Develops the Power Rule for Exponents and Product of a Power or Quotient Rule, and examples using more than one rule.
http://www.youtube.com/watch?v=HNJdc5SqxI1

5V6: Exponents 6 Negative Exponents, part 1
Develops the meaning of negative exponents and how to simplify expressions with negative exponents.
http://www.youtube.com/watch?v=oHNe8AKoE9M

5V7: Exponents 7 Negative Exponents part 2
Part 2 of negative exponents and how to simplify expressions with negative exponents.
http://www.youtube.com/watch?v=heUUBzvYA1o

Chapter 2: Energy & Matter - Algebra in Temperature and Energy Calculations

- Order of Operations

Order of Operations Part 1
Part 1 of Order of Operations: Explains the order of operations, what it means, and shows examples. Basic--no negative numbers or fractions.
http://www.youtube.com/watch?v=ahwlw4OCEAc

Order of Operations Part 2
Part 2 of Order of Operations: Shows examples. Basic--no negative numbers, but does contain fractions.
http://www.youtube.com/watch?v=NCixeUvWLSO

Order of Operations Part 3
Part 3 of Order of Operations: Shows examples. Basic--contains fractions but no negative numbers.
http://www.youtube.com/watch?v=EpX9ohiti6o

Algebra A Combined Approach (Elayn Martin-Gay) 4th Edition Section 5.1 and 5.2

- Rearranging to solve for unknown variable:

Part 1 of solving for one variable in a formula: http://www.youtube.com/watch?v=rS4JPQE4WHw

Part 2 of solving for one variable in a formula: http://www.youtube.com/watch?v=IaE5RTnL8C8
Algebra A Combined Approach (Elayn Martin-Gay) 4th Edition Section 2.5

- Temperature Conversions

http://www.youtube.com/watch?v=CWknRS_UW_k&feature=related
http://www.youtube.com/watch?v=mvKU1JYTmW

Algebra A Combined Approach (Elayn Martin-Gay) 4th Edition Section 2.5
Chapter 4: Nuclear Chemistry - Half-Life Calculations (Exponents)

Exponential Functions 1: Exponential functions are defined and graphed.
http://www.youtube.com/watch?v=r5YxTIgZyJ8

Exponential Functions 3: Exponential equations are solved.
http://www.youtube.com/watch?v=wN0amZ3kPnU

Half-Life Calculations: http://www.youtube.com/watch?v=izrbJMyYay4
Algebra A Combined Approach (Elayn Martin-Gay) 4th Edition Section 12.3-12.4

Chapter 6: Chemical RXNS and Quantities - Stoichiometry

Relates balanced chemical reaction to conversation of matter, mass and moles.
http://www.youtube.com/watch?v=-NtsViOIrZA&feature=related
http://www.brightstorm.com/science/chemistry/chemical-reactions/stoichiometry/
http://www.chemcollective.org/stoich/reaction_stoi.php


Chapter 7: Gases - Direct and Indirect Proportions

Solving Word Problems using Proportions Part 1:
http://www.youtube.com/watch?v=89H0VsSN7oC4&feature=related

Solving Word Problems using Proportions Part 2:
http://www.youtube.com/watch?v=PoEzBw7hJVU&feature=related
Algebra A Combined Approach (Elayn Martin-Gay) 4th Edition Section 7.6

Chapter 8: Solutions - Calculation of Concentration and Percentage

See Percentage Videos from Chapter 3, above.
See Rearranging to solve for unknown variable video in CH 2, above.

Percent Mixture Word Problems solved using one variable

Percent Mixture Problem #2: Calculating Percent Concentration of Solution
http://www.youtube.com/watch?v=iymFmROuLik

Percent Mixture Problem #3: Scale Up Concentration and Percent
http://www.youtube.com/watch?v=rowwhpgwVhU

Percent Mixture Problem #4: Percent Concentration and Dilution
http://www.youtube.com/watch?v=VEjt_Vhuf5s

Calculation Molarity:
http://www.youtube.com/watch?v=JwV3F708ZrI
Chapter 9: Chemical Equilibrium - Ratios and Equilibrium

See Rearranging to solve for unknown variable video in CH 2, above.
Pre-algebra (Elayne Martin-Gay) 5th Edition Section 6.1

Chapter 10: Acid and Bases - Logs and Anti-Logs When Dealing With pH

Logarithms 11: Defines common log, log x, and natural log, ln x, and works through examples and problems using a calculator.
http://www.youtube.com/watch?v=RTNN4ryUdPU

Algebra A Combined Approach (Elayn Martin-Gay) 4th Edition Section 12.5-12.8

Logarithms 12: Solve equations containing common logs and natural logs, ln.
http://www.youtube.com/watch?v=udD7sNCsaDE

Algebra A Combined Approach (Elayn Martin-Gay) 4th Edition Section 12.5-12.8

Logarithms 1: This is an introduction to Logarithms. Includes the definition, how to change an equation from log form to exponential form, and vice versa. We simplify a log expression. http://www.youtube.com/watch?v=-xl04o8inEQ

Algebra A Combined Approach (Elayn Martin-Gay) 4th Edition Section 12.5-12.8

Logarithms 2: We simplify log expressions, and solve logarithmic equations. http://www.youtube.com/watch?v=MYBCnRqiQY

Algebra A Combined Approach (Elayn Martin-Gay) 4th Edition Section 12.5-12.8

Logarithms 7: Develops Power Property of Logs and works problems and examples using the power property.
http://www.youtube.com/watch?v=vYrdHWR6Q6o

Algebra A Combined Approach (Elayn Martin-Gay) 4th Edition Section 12.5-12.8

Logarithms 8: Practice using the product, quotient, and power properties of logs.
http://www.youtube.com/watch?v=vbMsBTF5WfI

Algebra A Combined Approach (Elayn Martin-Gay) 4th Edition Section 12.5-12.8

Logarithms 9: Practice using the product, quotient, and power properties of logs.
http://www.youtube.com/watch?v=iHAz2CO-IwM

Algebra A Combined Approach (Elayn Martin-Gay) 4th Edition Section 12.5-12.8