Contra Costa Community College District

SECTION V.
SABBATICAL LEAVE APPLICATION

Name Cheryl Wilcox	Date 11/11/17
College Diablo Valley College	Teaching field(s) Mathematics
Sabbatical leave period requested Fall 2018	Years of service in CCCCD 20

Have you had previous Sabbaticals? If "yes" give time period(s) and activity (activities).

Yes, in 2009/10 I had a year-long sabbatical to write the textbook currently used in Math-075

Indicate type of Sabbatical program (see United Faculty Agreement, Section 12.5.6)
If program can be categorized by more than one type, check where applicable.

- ❑ Institutional study (complete Form A)
- ❑ Travel (complete Form B
- ✔ Professional Study and/or Creative Study (complete Form C)

GENERAL SUMMARY OF SABBATICAL PROGRAM
(GIVE A 100-WORD MAXIMUM STATEMENT)

I will make a minimum of sixty (60) five- to ten-minute videos explaining sample problems from the ALEKS Introductory Algebra curriculum, to be used in the self-paced program,[1] in any Introductory Algebra classes using the ALEKS program,[2] and in Math-075, Math-85, Math-119, and Math-120 where topics overlap. Although the ALEKS program can be paired with a textbook that provides professional video instruction, adding the textbook triples the cost to students. The videos I make would be paired with specific ALEKS objectives that have been carefully chosen as places students need extra help, and free to students.

[1] Self-Paced Mathematics at DVC (from the DVC website)
Students in the DVC Self-Paced Mathematics Program learn on their own at a flexible pace, within certain deadlines. Instead of regularly scheduled lectures, students study with the help of a variety of resources: an interactive online math program, the instructor and tutors, and an optional textbook. The online program lets students repeat homework with immediate feedback until they have mastered the material. It also gives students explanations, sample problems, videos, powerpoints and animations. Once a student has demonstrated mastery of a set of material (including passing an in-class written exam), they move on to the next set of material.

[2] ALEKS is an adaptive, artificially-intelligent learning system that provides students with an individualized learning experience tailored to their unique strengths and weaknesses. (from the ALEKS website)

Name

VALUE TO EDUCATIONAL PROGRAM

(The Sabbatical Leave Committee will utilize this information as the basis for scoring Rubrics 1, 2, 3 and 4)

Describe how the proposed sabbatical will benefit the educational program. In particular:

1. How will it benefit students, programs, or staff/colleagues?

Students and Instructors in the self-paced program, and those that use ALEKS in face-to-face sections of our algebra courses will benefit from access to free videos linked to and explaining course material.

The Mathematics department's SP program, which includes the courses 075SP, 090SP, 120SP, and 135SP has used ALEKS successfully for many years in a self-paced format. Students may purchase the program alone, without a textbook, at a much lower cost, than courses that use a textbook and an online homework system. The program without textbook contains written examples and explanations, but no videos. Students in the self-paced program can ask instructors or tutors for help, but videos about specific problematic objectives would allow students to be more self-sufficient. It can also be helpful for students to watch videos repeatedly, or to pause at specific points.

2. How will it enhance and/or improve your background and professional competence?

Last year the department voted that the production of instructional videos was a developmental education priority. To this end, Jenny Freidenreich wrote a proposal for BSI funds for tablets and trainings for department members who are interested. I will be participating in the trainings and discussions this semester (Spring 2018) even though I have been making informal videos for my classes for a couple of years now. This way we will have consistency as a department and we are all working to the same standards. I would like to improve the quality of the videos and my video editing skills so that the process is quicker and easier if I want to make casual videos while teaching. I also see the project as leaving for students and colleagues a legacy of my teaching methods as I move toward retirement in the next five years.

3. How will it relate to your ongoing professional assignment?

As a mathematics instructor my professional concentration has been working with developmental education. I have taught Algebra for many years and have developed many instructional techniques valuable to students.

4. How are the breadth and depth of the project appropriate for the sabbatical leave rather than the regular teaching year?

While I can occasionally make informal videos to help students during the semester, this is a coordinated project in which I choose specific objectives and sample problems, carefully plan the script and steps, and create a high quality video without mistakes or background interruptions. A minimum of sixty videos of five to ten minutes in length is a large project.

Here is an example of a casual video I made for my statistics students:
https://www.youtube.com/watch?v=cZNEzeaTOss

Name Cheryl Wilcox

PROPOSED OBJECTIVES AND EVIDENCE OF COMPLETION

(The Sabbatical Leave Committee will utilize this information as the basis for scoring Rubrics 5 and 6). Note that Rubric 6 regarding the "Proposed Evidence of Completion" is weighted twice that of all other rubrics.

Identify specific objectives and describe in detail the evidence that will accompany your report, which indicates that you have met each objective. The product of your approved sabbatical leave program will be subject to review by the Sabbatical Leave Committee at the time of making your final report. Examples follow:

Institutional study

Objective: 9 units of graduate level history courses as indicated on Form A will be taken at ... University.
Evidence: (Here you would describe the transcripts, class notes, exams, class projects, etc., you would submit as evidence of completing these units.)

Travel

Objective: Travel to archeological zones in Central America.
Evidence: (Here you would describe exactly what you plan to submit to document your sabbatical leave travel. You should specify the kinds of things you will present, like journals, artifacts, and slides, and you should give the committee an idea of the extent of the evidence by specifying the minimum number of slides, pages in a journal, number of museums, etc. If you so state, you must provide tangible evidence in your final sabbatical leave report that you have, in fact, written the minimum number of pages you proposed, visited the minimum number of archaeological zones you proposed, etc.

Professional study and/or creative study

Objective: Compose a musical score or write a textbook.
Evidence: (Here you would clearly indicate the scope of the project, including the minimum number of pages you plan to write, approximate length, an outline of the contents, description of the complexity, etc.)

The Committee will rely on the information you provide in the evidence section to determine if you have met the contractual obligation of the leave.

- A minimum of sixty (60) five- to ten-minute instructional videos explaining sample problems from the ALEKS Introductory Algebra curriculum, available on YouTube, and linked in the self-paced Canvas 090SP course.
- A complete list of the topics in the ALEKS program for Math-090 (Introductory Algebra) with the topics linked to videos highlighted, so students and instructors can see if there is a video available for a given topic.

Name

INSTITUTIONAL STUDY

Name of Institution	Place of Institution

Period of Attendance	UNDERGRADUATE LEVEL	GRADUATE LEVEL
	❑ Semester units to be attempted* ❑ Quarter Units to be attempted *(Minimum 12 semester units) *(Minimum 18 quarter units) ***Neither continuing education units (CEUs) nor courses taken from unaccredited institutions will be considered as Institutional Study. Please see Professional Study Form C.***	❑ Semester units to be attempted* ❑ Quarter units to be attempted *(Minimum 9 semester units) *(Minimum 13.5 quarter units) ***Neither continuing education units (CEUs) nor courses taken from unaccredited institutions will be considered as Institutional Study. Please see Professional Study Form C.***

Accepted for Admission: Yes No Other
If "Yes," attach evidence of admission.
If "Other," explain:

List courses and unit value from the institution's catalogue. In case your choice of courses is not available, please indicate substitutions. (The Sabbatical Leave Committee will utilize this information as the basis for scoring Rubric 7. Be sure that the scope of your studies is clearly defined.)

*** A full load is considered to be 12 semester units of undergraduate work or 18 undergraduate quarter units, or 9 semester units of graduate work or 13.5 quarter units at an accredited college/university.**

Name

TRAVEL

Plan: Itinerary (The Sabbatical Leave Committee will utilize this information as the basis for scoring Rubric 7. Be sure that the purpose, duration, and schedule of your travel are clearly delineated.)

Place	Duration of Visit	Purpose

Name Cheryl Wilcox

PROFESSIONAL STUDY AND/OR CREATIVE STUDY

(The Sabbatical Leave Committee will utilize this information as the basis for scoring Rubric 7. Units completed at any unaccredited and/or international institutions will not be considered. Be sure the kind and scope of your study methods, resources, and activities are clearly delineated. Include an estimate of the time that will be spent engaged in various activities.)

Please see the attached list of ALEKS objectives, by week, as outlined by the self-paced curriculum. (It is very long.)
From each week's lesson I will choose four to six topics (from the 20 to 35 topics listed) which instructors have found to be difficult for most students. I will then carefully choose example problems for each topic and make a short video for each.
Each video will

- place the carefully chosen example in context of the course curriculum,
- work through the steps carefully,
- and provide a "you try it" problem with answer.

Therefore each week I will make the four to six videos corresponding to that week's lesson objectives in the Math-090SP curriculum, submit the videos to DSS for captioning, and post the videos on YouTube. There are fifteen weeks of lesson topics, so four topics from each lesson totals 60 videos.

Each week will follow this pattern:

- Go over the list of objectives for the week and determine which are the most troublesome for students. See if any objectives can be combined into a single video with two examples.
- Determine example problems for each topic that a) match the ALEKS problems the students will encounter, b) do not contain any "coincidences" that confuse students (is it the 3 in the exponent, or coefficient, that you are using?), and c) illuminate the difficulties students find in the material.
- Script and practice each topic for brevity and clarity.
- Make several tries for each video (probably) and choose the best.
- Do any video editing necessary.
- Post the videos to YouTube and provide the links to the self-paced program coordinator.
- Collect any feedback about previously posted videos.

After the fifteen weeks of lessons have been created, in the final two weeks of the semester, I will

- Review feedback from self-paced program and revise any videos that have reported issues.
- Review YouTube's closed captioning* on the videos and submit any videos with captioning errors to DSS for professional captioning.
- Make sure the list of videos is complete and available to all mathematics instructors.
- Perhaps add new topics if none of the above is very troublesome.

*The closed captioning provided on YouTube is usually very accurate for videos I have previously posted. However, I can submit all the videos to DSS for closed captioning. One of our training sessions will be on closed captioning, so perhaps I can do it myself. I am aware of the issue and will have DSS approved videos.

List of Topics: Math-090SP

7

Lesson 1 pie exercises (28 topics)
Equivalent fractions
Simplifying a fraction
Addition or subtraction of fractions with the same denominator
Addition or subtraction of fractions with the same denominator and simplification
Finding the LCD of two fractions
Addition or subtraction of fractions with different denominators
Addition and subtraction of 3 fractions with different denominators
Word problem involving addition or subtraction of fractions with different denominators
Product of a unit fraction and a whole number
Product of a fraction and a whole number: Problem type 1
Fraction multiplication
Product of a fraction and a whole number: Problem type 2
Division involving a whole number and a fraction
Fraction division
Writing a mixed number as an improper fraction
Fractional position on a number line
Plotting integers on a number line
Ordering integers
Square root of a perfect square
Using a calculator to approximate a square root
Absolute value of a number
Integer subtraction: Problem type 3
Addition and subtraction with 4 or 5 integers
Signed fraction addition or subtraction: Basic
Signed fraction subtraction involving double negation
Signed fraction addition or subtraction: Advanced
Addition and subtraction of 3 fractions involving signs
Introduction to properties of addition
Lesson 2 pie exercises (27 topics)
Writing expressions using exponents
Evaluating an algebraic expression: Whole number operations and exponents
Multiplication of 3 fractions
Exponents and fractions
Order of operations with fractions: Problem type 1
Order of operations with fractions: Problem type 2
Order of operations with fractions: Problem type 3
Average of two numbers
Division involving zero
Signed fraction multiplication: Advanced
Signed fraction division
Operations with absolute value: Problem type 2

Exponents and integers: Problem type 1
Exponents and integers: Problem type 2
Exponents and signed fractions
Order of operations with integers
Order of operations with integers and exponents
Evaluating a linear expression: Integer multiplication with addition or subtraction
Evaluating a quadratic expression: Integers
Evaluating a linear expression: Signed fraction multiplication with addition or subtraction
Evaluating a linear expression: Signed decimal addition and subtraction
Evaluating a linear expression: Signed decimal multiplication with addition or subtraction
Understanding the distributive property
Introduction to properties of multiplication
Writing a one-step expression for a real-world situation
Translating a phrase into a one-step expression
Translating a phrase into a two-step expression
Lesson 3 pie exercises (35 topics)
Converting between percentages and decimals
Converting a mixed number percentage to a decimal
Converting a fraction to a percentage in a real-world situation
Additive property of equality with integers
Additive property of equality with signed fractions
Multiplicative property of equality with integers
Multiplicative property of equality with signed fractions
Identifying solutions to a linear equation in one variable: Two-step equations
Additive property of equality with a negative coefficient
Solving a two-step equation with integers
Introduction to solving an equation with parentheses
Solving a multi-step equation given in fractional form
Introduction to solving an equation with variables on the same side
Solving a linear equation with several occurrences of the variable: Variables on the same side
Solving a linear equation with several occurrences of the variable: Variables on both sides
Solving a linear equation with several occurrences of the variable: Variables on the same side and distribution
Solving a linear equation with several occurrences of the variable: Variables on both sides and distribution
Solving a linear equation with several occurrences of the variable: Variables on both sides and two distributions
Solving a linear equation with several occurrences of the variable: Fractional forms with monomial numerators
Solving a two-step equation with signed fractions
Solving a linear equation with several occurrences of the variable: Variables on both sides and fractional coefficients
Solving a linear equation with several occurrences of the variable: Fractional forms with binomial numerators
Solving equations with zero, one, or infinitely many solutions
Translating a sentence into a one-step equation
Translating a sentence into a multi-step equation
Solving a fraction word problem using a linear equation of the form Ax = B

Finding a percentage of a whole number
Applying the percent equation: Problem type 1
Applying the percent equation: Problem type 2
Finding a percentage of a total amount: Real-world situations
Finding the total amount given the percentage of a partial amount
Finding the final amount given the original amount and a percentage increase or decrease
Finding the original amount given the result of a percentage increase or decrease
Finding the percentage increase or decrease: Basic
Finding the percentage increase or decrease: Advanced
Lesson 4 pie exercises (33 topics)
Solving for a variable in terms of other variables using addition or subtraction: Basic
Solving for a variable in terms of other variables using addition or subtraction: Advanced
Solving for a variable in terms of other variables using multiplication or division: Basic
Solving for a variable in terms of other variables using multiplication or division: Advanced
Solving for a variable in terms of other variables using addition or subtraction with division
Solving for a variable inside parentheses in terms of other variables
Solving for a variable in terms of other variables in a linear equation with fractions
Solving a word problem with three unknowns using a linear equation
Writing a multi-step equation for a real-world situation
Solving a value mixture problem using a linear equation
Solving a one-step word problem using the formula d = rt
Solving a distance, rate, time problem using a linear equation
Finding the value for a new score that will yield a given mean
Computing a percent mixture
Solving a percent mixture problem using a linear equation
Translating a sentence by using an inequality symbol
Translating a sentence into a one-step inequality
Translating a sentence into a multi-step inequality
Writing an inequality for a real-world situation
Graphing a linear inequality on the number line
Writing an inequality given a graph on the number line
Set builder and interval notation
Identifying solutions to a two-step linear inequality in one variable
Additive property of inequality with integers
Additive property of inequality with signed fractions
Multiplicative property of inequality with integers
Multiplicative property of inequality with signed fractions
Solving a two-step linear inequality: Problem type 1
Solving a two-step linear inequality: Problem type 2
Solving a two-step linear inequality with a fractional coefficient
Solving a linear inequality with multiple occurrences of the variable: Problem type 1
Solving a linear inequality with multiple occurrences of the variable: Problem type 2
Solving a linear inequality with multiple occurrences of the variable: Problem type 3
Lesson 5 pie exercises (22 topics)
Reading a point in the coordinate plane
Plotting a point in the coordinate plane

Table for a linear equation
Identifying solutions to a linear equation in two variables
Finding a solution to a linear equation in two variables
Graphing a linear equation of the form y = mx
Graphing a line given its equation in slope-intercept form: Integer slope
Graphing a line given its equation in slope-intercept form: Fractional slope
Graphing a line given its equation in standard form
Graphing a vertical or horizontal line
Finding x- and y-intercepts given the graph of a line on a grid
Finding x- and y-intercepts of a line given the equation: Basic
Finding x- and y-intercepts of a line given the equation: Advanced
Graphing a line given its x- and y-intercepts
Graphing a line by first finding its x- and y-intercepts
Classifying slopes given graphs of lines
Finding slope given the graph of a line on a grid
Finding slope given two points on the line
Finding the slope of horizontal and vertical lines
Identifying linear equations: Advanced
Choosing a graph to fit a narrative: Basic
Choosing a graph to fit a narrative : Advanced
Lesson 6 pie exercises (18 topics)
Graphing a line given its slope and y-intercept
Graphing a line through a given point with a given slope
Finding the slope and y-intercept of a line given its equation in the form y = mx + b
Finding the slope and y-intercept of a line given its equation in the form Ax + By = C
Graphing a line by first finding its slope and y-intercept
Writing an equation of a line given its slope and y-intercept
Writing an equation and graphing a line given its slope and y-intercept
Writing an equation in slope-intercept form given the slope and a point
Writing an equation in point-slope form given the slope and a point
Writing an equation of a line given the y-intercept and another point
Writing the equation of the line through two given points
Writing the equations of vertical and horizontal lines through a given point
Finding slopes of lines parallel and perpendicular to a line given in slope-intercept form
Finding slopes of lines parallel and perpendicular to a line given in the form Ax + By = C
Identifying parallel and perpendicular lines from equations
Writing equations of lines parallel and perpendicular to a given line through a point
Writing and evaluating a function that models a real-world situation: Advanced
Writing an equation and drawing its graph to model a real-world situation: Advanced
Lesson 7 pie exercises (16 topics)
Identifying solutions to a system of linear equations
Classifying systems of linear equations from graphs
Graphically solving a system of linear equations
Solving a system of linear equations using substitution
Solving a system of linear equations using elimination with addition
Solving a system of linear equations using elimination with multiplication and addition

Solving a system of linear equations with fractional coefficients
Solving a system of linear equations with decimal coefficients
Solving a system of linear equations that is inconsistent or consistent dependent
Interpreting the graphs of two functions
Solving a word problem involving a sum and another basic relationship using a system of linear equations
Solving a word problem using a system of linear equations of the form Ax + By = C
Solving a value mixture problem using a system of linear equations
Solving a percent mixture problem using a system of linear equations
Solving a distance, rate, time problem using a system of linear equations
Solving a tax rate or interest rate problem using a system of linear equations
Lesson 8 pie exercises (34 topics)
Power of 10: Positive exponent
Evaluating a quadratic expression: Integers
Understanding the product rule of exponents
Introduction to the product rule of exponents
Understanding the power rules of exponents
Introduction to the power of a power rule of exponents
Introduction to the power of a product rule of exponents
Power rules with positive exponents: Multivariate products
Power rules with positive exponents: Multivariate quotients
Power and product rules with positive exponents
Simplifying a ratio of multivariate monomials: Basic
Introduction to the quotient rule of exponents
Simplifying a ratio of univariate monomials
Quotient of expressions involving exponents
Power and quotient rules with positive exponents
Evaluating expressions with exponents of zero
Power of 10: Negative exponent
Evaluating an expression with a negative exponent: Whole number base
Evaluating an expression with a negative exponent: Positive fraction base
Evaluating an expression with a negative exponent: Negative integer base
Rewriting an algebraic expression without a negative exponent
Introduction to the product rule with negative exponents
Product rule with negative exponents
Quotient rule with negative exponents: Problem type 1
Quotient rule with negative exponents: Problem type 2
Power of a power rule with negative exponents
Power rules with negative exponents
Power and quotient rules with negative exponents: Problem type 1
Power and quotient rules with negative exponents: Problem type 2
Power, product, and quotient rules with negative exponents
Scientific notation with positive exponent
Scientific notation with negative exponent
Multiplying numbers written in scientific notation: Basic
Dividing numbers written in scientific notation: Basic

Lesson 9 pie exercises (21 topics)
Product rule with positive exponents: Univariate
Product rule with positive exponents: Multivariate
Quotient of expressions involving exponents
Simplifying a sum or difference of two univariate polynomials
Simplifying a sum or difference of three univariate polynomials
Simplifying a sum or difference of multivariate polynomials
Multiplying a univariate polynomial by a monomial with a positive coefficient
Multiplying a univariate polynomial by a monomial with a negative coefficient
Multiplying a multivariate polynomial by a monomial
Multiplying binomials with leading coefficients of 1
Multiplying binomials with leading coefficients greater than 1
Multiplying binomials in two variables
Multiplying conjugate binomials: Univariate
Multiplying conjugate binomials: Multivariate
Squaring a binomial: Univariate
Squaring a binomial: Multivariate
Multiplying binomials with negative coefficients
Multiplication involving binomials and trinomials in one variable
Multiplication involving binomials and trinomials in two variables
Dividing a polynomial by a monomial: Univariate
Dividing a polynomial by a monomial: Multivariate
Lesson 10 pie exercises (21 topics)
Greatest common factor of 2 numbers
Factoring a linear binomial
Introduction to the GCF of two monomials
Greatest common factor of three univariate monomials
Factoring out a monomial from a polynomial: Univariate
Factoring out a binomial from a polynomial: Basic
Factoring a univariate polynomial by grouping: Problem type 1
Factoring a univariate polynomial by grouping: Problem type 2
Factoring a quadratic with leading coefficient 1
Factoring a quadratic in two variables with leading coefficient 1
Factoring out a constant before factoring a quadratic
Factoring a quadratic with leading coefficient greater than 1: Problem type 1
Factoring a quadratic with leading coefficient greater than 1: Problem type 2
Factoring a quadratic with leading coefficient greater than 1: Problem type 3
Factoring a quadratic with a negative leading coefficient
Factoring a perfect square trinomial with leading coefficient 1
Factoring a perfect square trinomial with leading coefficient greater than 1
Factoring a difference of squares in one variable: Basic
Factoring a difference of squares in one variable: Advanced
Factoring a polynomial involving a GCF and a difference of squares: Univariate
Factoring with repeated use of the difference of squares formula

Lesson 11 pie exercises (22 topics)
Simplifying a ratio of univariate monomials
Factoring a quadratic by the ac-method
Factoring a product of a quadratic trinomial and a monomial
Solving an equation written in factored form
Finding the roots of a quadratic equation of the form $ax^2 + bx = 0$
Finding the roots of a quadratic equation with leading coefficient 1
Finding the roots of a quadratic equation with leading coefficient greater than 1
Solving a quadratic equation needing simplification
Restriction on a variable in a denominator: Linear
Restriction on a variable in a denominator: Quadratic
Simplifying a ratio of factored polynomials: Linear factors
Simplifying a ratio of polynomials using GCF factoring
Simplifying a ratio of linear polynomials: 1, -1, and no simplification
Simplifying a ratio of polynomials by factoring a quadratic with leading coefficient 1
Simplifying a ratio of polynomials: Problem type 1
Simplifying a ratio of polynomials: Problem type 3
Multiplying rational expressions made up of linear expressions
Multiplying rational expressions involving quadratics with leading coefficients of 1
Multiplying rational expressions involving quadratics with leading coefficients greater than 1
Dividing rational expressions involving linear expressions
Dividing rational expressions involving quadratics with leading coefficients of 1
Dividing rational expressions involving quadratics with leading coefficients greater than 1

Lesson 12 pie exercises (21 topics)
Introduction to the LCM of two monomials
Least common multiple of two monomials
Finding the LCD of rational expressions with linear denominators: Relatively prime
Finding the LCD of rational expressions with linear denominators: Common factors
Finding the LCD of rational expressions with quadratic denominators
Writing equivalent rational expressions with monomial denominators
Writing equivalent rational expressions with polynomial denominators
Writing equivalent rational expressions involving opposite factors
Introduction to adding fractions with variables and common denominators
Adding rational expressions with common denominators and monomial numerators
Adding rational expressions with common denominators and binomial numerators
Adding rational expressions with common denominators and GCF factoring
Adding rational expressions with common denominators and quadratic factoring
Adding rational expressions with different denominators and a single occurrence of a variable
Adding rational expressions with denominators ax and bx: Basic
Adding rational expressions with denominators ax and bx: Advanced
Adding rational expressions with denominators ax^n and bx^m
Adding rational expressions with linear denominators without common factors: Basic
Adding rational expressions with linear denominators without common factors: Advanced
Adding rational expressions with denominators ax-b and b-ax
Adding rational expressions involving different quadratic denominators

Lesson 13 pie exercises (26 topics)
Solving a word problem on proportions using a unit rate
Solving a proportion of the form x/a = b/c
Solving a proportion of the form (x+a)/b = c/d
Solving a proportion of the form a/(x+b) = c/x
Solving a rational equation that simplifies to linear: Denominator x
Solving a rational equation that simplifies to linear: Denominator x+a
Solving a rational equation that simplifies to linear: Denominators a, x, or ax
Solving a rational equation that simplifies to linear: Denominators ax and bx
Solving a rational equation that simplifies to linear: Like binomial denominators
Solving a rational equation that simplifies to linear: Unlike binomial denominators
Solving a rational equation that simplifies to linear: Factorable quadratic denominator
Solving a rational equation that simplifies to quadratic: Proportional form, basic
Writing ratios using different notations
Writing ratios for real-world situations
Simplifying a ratio of whole numbers: Problem type 1
Finding a unit price
Computing unit prices to find the better buy
U.S. Customary unit conversion with whole number values
Metric distance conversion with whole number values
Converting between metric and U.S. Customary unit systems
Converting between compound units: Basic
Converting between compound units: Advanced
Word problem on proportions: Problem type 1
Word problem involving multiple rates
Solving a work problem using a rational equation
Solving a distance, rate, time problem using a rational equation
Lesson 14 pie exercises (21 topics)
Square root of a perfect square
Using a calculator to approximate a square root
Estimating a square root
Introduction to the Pythagorean Theorem
Pythagorean Theorem
Word problem involving the Pythagorean Theorem
Finding all square roots of a number
Square root of a rational perfect square
Square roots of perfect squares with signs
Introduction to simplifying a radical expression with an even exponent
Square root of a perfect square monomial
Simplifying the square root of a whole number less than 100
Simplifying the square root of a whole number greater than 100
Simplifying a radical expression with an even exponent
Introduction to simplifying a radical expression with an odd exponent
Simplifying a radical expression with an odd exponent
Introduction to square root addition or subtraction
Square root addition or subtraction

Square root addition or subtraction with three terms
Introduction to simplifying a sum or difference of radical expressions: Univariate
Simplifying a sum or difference of radical expressions: Univariate
Lesson 15 pie exercises (17 topics)
Introduction to square root multiplication
Square root multiplication: Basic
Square root multiplication: Advanced
Introduction to simplifying a product of radical expressions: Univariate
Simplifying a product of radical expressions: Univariate
Introduction to simplifying a product involving square roots using the distributive property
Simplifying a product involving square roots using the distributive property: Basic
Simplifying a product involving square roots using the distributive property: Advanced
Special products of radical expressions: Conjugates and squaring
Simplifying a quotient of square roots
Simplifying a quotient involving a sum or difference with a square root
Rationalizing a denominator: Quotient involving square roots
Rationalizing a denominator: Square root of a fraction
Rationalizing a denominator: Quotient involving a monomial
Introduction to solving a radical equation
Solving a radical equation that simplifies to a linear equation: One radical, basic
Solving a radical equation that simplifies to a linear equation: One radical, advanced
Solving an equation of the form x2 = a using the square root property
Solving a quadratic equation using the square root property: Exact answers, basic
Solving a quadratic equation using the square root property: Exact answers, advanced
Applying the quadratic formula: Exact answers
Applying the quadratic formula: Decimal answers

DVC Mathematics Department

Letter in Support of Cheryl Wilcox's Sabbatical Application

At its meeting of 11/20/17, the DVC Mathematics department voted unanimously and enthusiastically in support of Cheryl Wilcox's proposed sabbatical project.

While students can access videos about Mathematics from many sources, the quality is variable, and it's difficult for students to evaluate which videos could be helpful to them at the level of their current needs. The output of this sabbatical proposal will provide quality videos that are exactly on point to student needs and easily attached to their student learning outcomes, particularly in the basic skills Mathematics classes. Also, videos featuring a local personality – perhaps a student's own teacher – carry more impact than videos featuring an unknown talking head.

For these reasons I am happy to forward the Department's support of Cheryl's proposal.

Sincerely,

CDS Needham
Mathematics Department Chair.

DVC
DIABLO VALLEY COLLEGE

12/6/17

To the Sabbatical leave committee,

This letter is in support of Cheryl Wilcox's sabbatical leave proposal.

Her proposal to make videos based on the Math topics in the online homework system ALEKS will be very beneficial to not only all Elementary Algebra students, but particularly for the students in DVC's Self-paced Math program. Students in the Self-paced Math program work at their own pace using the ALEKS program. One thing that is lacking in the program are videos that are tied to the topics themselves; there are topics that students find difficult and having these discussed on video will allow students to get an explanation without having to wait for their next class meeting. Having access to a short video should help with student retention and success.

The instructors in the Self-paced Math program have been consulted on this project. The Self-paced Math program and instructors are looking forward to collaborating with Cheryl on which topics we would like to see her include in her project.

Sincerely,

Jane Brecha
Math Faculty
Self-paced Math coordinator