Three Rivers COMMUNITY COLLEGE

MAT* K172 College Algebra Fall 2019

32229 T3 MW 4:30 – 5:45 pm **D 105**

INSTRUCTOR: Dr. Kelly Molkenthin (pronounced "molk-in-tine")
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Office Hours: Mondays 3:25 – 4:25 pm
Tuesdays 3:45 – 4:45 pm
Wednesdays 3:25 – 4:25 pm
Thursdays 11:15 am – 12:15 pm
and by appointment.

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COURSE DESCRITPION:

Prerequisite: MAT* K137 or MAT* K137S with a "C" grade or better or appropriate placement through multiple measures assessment process.
This course is a thorough and rigorous algebra course that strengthens the understanding of functions, their properties, multiple representations, and operations with functions. The function families studied include: polynomial, exponential, logarithmic, rational, and radical functions. Students will also learn linear and quadratic inequalities, absolute value equations and inequalities, linear and non-linear systems.

REQUIRED MATERIAL:

- Graphing Calculator: calculators will be needed for many homework problems and it is REQUIRED that you bring one to **every class** and **each exam**. TI-89 and TI-Inspire calculators may **NOT** be used on exams. Cell phones may not be used as calculators in class or during exams.

- Text: *Precalculus, 1st Edition*. Coburn & Herdlick. McGraw Hill 2012. ISBN #9780073519531

You can purchase a hardcover or paperback book with ALEKS 360 access code or just the electronic access kit (which includes ebook). You are required to purchase the access code for ***ALEKS 360***

- Access code for ***ALEKS 360***

Options:

1) Combo package; Includes copy of text, ALEX **360** (includes ebook). This gives access for a full year to ALEKS.

2) ALEKS **360** 52 week access code (includes ebook), This gives access for a full year to ALEKS.

or 3) ALEKS **360** 18 week access code (includes ebook), This gives access for fall term only to ALEKS

COMPUTERS: In this course, students will use an online program titled **ALEKS 360.** This program can be used on any computer or tablet with internet access. An access code for **ALEKS 360** is required. If you did not purchase a book which has an access code bundled with it, you will have to purchase an access code separately. One may be purchased at the TRCC bookstore or online at www.aleks.com.

What is ALEKS?

Assessment and **LE**arning in **K**nowledge **S**paces is a Web-based, artificially intelligent assessment and learning system. ALEKS uses adaptive questioning to quickly and accurately determine exactly what a student knows and doesn't know in a course. ALEKS then instructs the student on the topics she is most ready to learn. As a student works through a course, ALEKS periodically reassesses the student to ensure that topics learned are also retained. ALEKS courses are very complete in their topic coverage. A student who shows a high level of mastery of an ALEKS course will be successful in the actual course she/he is taking.

Course Code: YRVLH 36D34

LEARNING OUTCOMES:

1) Define absolute value, find distances on the number line and the coordinate plane.

2) Simplify expressions with rational exponents, write them in radical form, simplify, combine and rationalize radical expressions.

3) Solver linear and quadratic inequalities, absolute value equations and inequalities, express answers in interval form.

4) Perform operations on complex numbers, conjugates, represent complex numbers graphically.

5) Perform operations on radical expressions, rational exponents, solve radical equations.

6) Find the domain and range of function's, combine functions, identify even and odd functions, graph piece-wise functions, find composition of functions, inverse and transforms of functions.

7) Find the characteristics of polynomial functions, solve polynomial equations, find zeros (roots) and x-intercepts of polynomials, apply the Fundamental Theorem of Algebra, The Remainder Theorem, The Factor Theorem, analyze end behavior.

8) Graph rational functions, find vertical, horizontal and slant asymptotes.

9) Graph exponential and logarithmic functions, use properties of exponents and logarithms, solve exponential and logarithmic equations.

10) Solve systems of linear equations in several variables

GRADING:		
	3 One-Hour Exams:	300 points (100 each)
	Final Exam:	200 points
	Quickie Quizzes	100 points (5 points each)
	ALEKS	200 points
	Attendance/Participation:	50 points
	Total:	850 points

GRADING POLICIES:

- **Late Work/ Missed Work Make-Up Policy:** Late work is not accepted. All ALEKS work must be completed by the predetermined day/time. There are no make-ups for missed quizzes.
- **Extra Credit:** There will be **no** "extra credit" assignments for this course.

LETTER GRADE EQUIVALENTS:

Your final grade is the total number of points you have received divided by the total possible number of points. Final grades will be determined using the scale below:

A → 93% and above **A-** → 90 - 92%

B+ → 87 - 89% **B** → 83 - 86% **B-** → 80 - 82%

C+ → 77 - 79% **C** → 73 - 76% **C-** → 70 - 72%

D+ → 67 - 69% **D** → 63 – 66% **D**- → 60 – 62%

EXAMS: You will have three sectional exams and one final exam. Exams are (tentatively) scheduled for the following dates:

- ♦ **Exam 1**: Wednesday, 10/02/19 (100 points)
- ♦ **Exam 2:** Wednesday, 11/06/19 (100 points)
- ♦ **Exam 3:** Wednesday, 12/04/19 (100 points)
- ♦ **Final Exam:** Wednesday, 12/11/19 (200 points)

This may change (but hopefully not), depending on how we are doing. Make-ups for exams will be given only in **EXTREME** circumstances (to be determined by instructor: "vacations" or dentist/doctor appointments are NOT valid reasons to miss an exam, for example) AND if arrangements are made **PRIOR** to the missed exam. Any make-up must be completed within 48 hours of the missed exam. No exam will be administered prior to the date/time of the scheduled exam. **No calls/no shows will receive a grade of 0 (zero)** on any exam. Your final exam is a cumulative **2+ hour** final exam on Wednesday 12/11.

QUICKIE QUIZZES: There will be approximately 24 "quickie quizzes" throughout the semester, given in the first 5 minutes of class. Quickie quizzes will be on the material from the previous class meeting, unless otherwise specified by the instructor. There are no make-ups for quickie quizzes. I will take your top 20 grades.

RETENTION OF PAPERS: Students are expected to retain all graded work until final grades are received.

ALEKS: A five hour per week minimum level of student participation is required. This will account for 75 of the 200 ALEKS grade points. The five hour participation requirement is waived on a weekly basis ONLY if all current prerequisites have been completed, as well as current topic objectives (topic objectives will be determined at the end of each class meeting, and objective % will be determined weekly). In ALEKS students are expected to complete all objectives displayed in the four objective pies. Completion of each objective pie by its specified due date is worth a total of 100 grade points. Course mastery in ALEKS is worth 25 grade points.

Weekly Time Goals:	75 points (5 points each week)
Objective Pies:	100 points
Course Mastery:	25 points

❒ Time Goal #1 – due Tuesday 9/3, 11:59 pm (5 points)

❒ Time Goal #2 – due Tuesday y 9/10, 11:59 pm (5 points)

❒ Time Goal #3 – due Tuesday 9/17, 11:59 pm (5 points)

❒ Time Goal #4 – Tuesday 9/24, 11:59 pm (5 points)

❒ Time Goal #5 – due Tuesday 10/1, 11:59 pm (5 points)

❒ **Objective Pie #1: due Tuesday 10/1, 11:59 pm** (30 points)
Exam #1 – Wednesday 10/2 (100 points)

❒ Time Goal #6 – due Tuesday, 10/8, 11:59 pm (5 points)

❒ Time Goal #7– due Tuesday 10/15, 11:59 pm (5 points)

❒ Time Goal #8 – due Tuesday 10/22, 11:59 pm (5 points)

❒ Time Goal #9 – due Tuesday 10/29, 11:59 pm (5 points)

❒ Time Goal #10 – due Tuesday 11/5, 11:59 pm (5 points)

❒ **Objective Pie #2: due Tuesday 11/5, 11:59 pm** (30 points)
Exam #2 – Wednesday 11/6 (100 points)

❒ Time Goal #11 – due Tuesday 11/12, 11:59 pm (5 points)

❒ Time Goal #12 – due Tuesday 11/19, 11:59 pm (5 points)

❒ Time Goal #13 – due Tuesday 11/26, 11:59 pm (5 points)

❒ Time Goal #14 – due Tuesday 12/3, 11:59 pm (5 points)

❒ **Objective Pie #3: due Tuesday 12/3, 11:59 pm** (30 points)
Exam #3 – Wednesday 12/4 (100 points)

❒ Time Goal #15 – due Tuesday 12/10, 11:59 pm (5 points)

❒ **Objective Pie #4: due Wednesday 12/10, 11:59** (10 points)
Final Exam – Wednesday 12/11 (200 points)

❒ **Course Mastery Pie: due Wednesday 12/11, 4:30 pm** (25 points)

EXPECTATION: Our expectation is that you are spending 2-3 hours of reading and doing homework for this class for every "academic" hour we meet in class. We meet 3 "academic" hours per week, therefore you should expect to spend ***at least* 6 - 9 hours per week** on this class, outside of class meetings, every week!

HOMEWORK QUESTIONS: Class time is reserved for presentation of material. Homework questions will be answered outside class meetings.

ATTENDANCE & PARTICIPATION: All students start the semester will 50 *bonus* Attendance/Participation points. Points will be deducted for unexcused absences, late arrivals, early departures, cell phone, tablet/computer use during class time and other distracting classroom behavior (determined by instructor). Attendance is required and will be taken for each class. An absence is excused ONLY for valid reasons (to be determined by the instructor) and if notification is given **PRIOR** to a missed class (via email, phone message – **not** word of mouth from another student). Oversleeping, "colds" and vacations are examples that are **not** valid reasons for an absence.

All absences reported by phone or reported to instructor in person **must be followed up with an email, or they will be considered unexcused. Do you best to not miss ANY classes!! Students are allowed a maximum of 2 excused absences per semester, excused absences will not affect your attendance and participation grade. Unexcused absences *will* lower your attendance and participation grade.

Also, if you miss a class it is **YOUR** responsibility to get the class notes from another student (refer to your class list- instructor DOES NOT provide notes for missed classes) and **BE PREPARED** for the next class meeting (this includes taking scheduled exams).

Note: **Class BEGINS at 4:30 pm.** It is expected that you will be in your seat and ready to go at the start of the class time. Plan to arrive to class 5 minutes prior to the scheduled start time. Students arriving after the start of class time will lose attendance points for that class. Excessive "lateness" will not be tolerated, it is disruptive to both the instructor and the class. Emergencies and special circumstances can typically be accommodated – especially when discussed with the teacher in advance. However, regular late arrivals and early departures are unwanted interruptions that affect the classroom as a whole.

COMMUNICATION: All communication will occur by email (kmolkenthin@trcc.commnet.edu). Please make sure that you check your TRCC email or set it up to forward to another account. Check your email regularly to be informed of any changes in schedule.

CLASS CANCELLATION: If school is cancelled, notification of cancellation due to inclement weather will be available by telephone by 6:00 am for daytime classes and by 2:30 pm for evening classes by calling the College's main telephone at (860) 215-9000, pressing 1, and listening to the taped announcement. The College's website will also have announcements available by accessing the www.threerivers.edu home page. The myCommnet Alert Notification System will also be used to deliver important information regarding weather-related class cancellations, via both email messages and text messages, to registered individuals. To register, log on to your myCommnet account at http://my.commnet.edu/ and follow the link to myCommnet Alert. Please: DO NOT email or call instructor regarding weather delays/closings.

If class is cancelled by the instructor, a notice will be placed on the classroom door. If time permits, students may be notified by a message via email.

**For DELAYED college opening or EARLY college closing: If there is 45 minutes or more of class time from the start of a delayed opening or from the start of class until an early closing, we WILL still have class.

WITHDRAWAL POLICY: You may withdraw from this class any time up to and including **November 5** and you will receive a W grade on your transcript. However, you must complete a withdrawal form in the Registrar's Office at the time of withdrawal; *if you merely stop attending classes you will be assigned a grade of F* or *UF*. Any eligibility for refund of tuition is based on the date that the registrar receives the withdrawal.

INCOMPLETES: Incompletes will be given in *extreme* situations (to be determined by the instructor) and ONLY if most of the course work has been completed (*at least* 80%).

ACADEMIC INTEGRITY: The effective operation of any organization is dependent on the honesty and goodwill of its members. In an organization devoted to the pursuit of knowledge, acting with integrity is essential to effective teaching and learning. Furthermore, academic dishonesty erodes the legitimacy of every degree awarded by the College. To emphasize the importance of academic integrity, Three Rivers Community College adheres to the Student Code of Conduct and Discipline Policy, as provided by the Connecticut State Colleges and Universities (CSCU) - Board of Regents for Higher Education. (Please refer to BlackBoard for the complete statement.)

Some of the behaviors that will be considered cheating are:

- Communicating with another student during a quiz or exam
- Copying material from another student during a quiz or exam or from any assignment being graded
- Allowing another student to copy from your quiz, exam, or any assignment being graded
- Use of unauthorized assistance on any assignment being graded
- Use of unauthorized notes or books during a quiz or exam
- Providing or receiving a copy of a quiz or exam used in the course
- Use of a cell phone or pager to transmit information during a quiz or exam

All cases of academic dishonesty will be referred to the Academic Dean. Do not let yourself come under the suspicion of academic dishonesty.

CLASSROOM ETIQUETTE: Good manners and classroom etiquette should be common sense for most students. Occasionally there are students who seem unaware or oblivious to proper classroom etiquette. What is etiquette? It's a code of conduct, a method for dealing with how people interact with each other – based on respect and accepted norms of behavior.

1. Arrive to Class on Time.
   Regularly arriving late to class signals a level of disrespect -- whether you mean to send that signal or not. If you have problems getting to class on time, find a way to solve them. And on those rare days when you do arrive late, remember to enter the room quietly.
2. Turn Off Your Cell Phone.
   Unless you are expecting an important call or text (for which you will notify the instructor ahead of time), the proper thing to do is turn your cell phone completely off, or at least the volume off, as soon as you enter class and properly place it completely inside a pocket or bag. Also, remove any ear buds/headphones and place in a pocket or bag prior to the start of the class.
3. Do Not Bring Food or Drink to Class
   Do not eat or drink in class, **unless you are willing and able to clean up after yourself**. In many classrooms food is not allowed, so be sure to check for signage.
4. Avoid Side Conversations.
   It is rude for students have a "private" conversation loudly enough that it's distracting to the instructor or other students in the classroom. If you have big news to share with your friends, do so before or after class -- but refrain from doing so during class. Besides being more respectful to the students and professor, you'll actually learn more information by being actively involved in the class rather than in your own side conversation.

5. Be Attentive in Class.

   If you are going to make the effort to arrive on time and be in class, you should also make the effort to stay actively engaged in class. Avoid reading magazines, textbooks, completing any homework or computer use during class time. Flaunting your boredom or disinterest in the class is rude and inappropriate. Finally, please avoid falling asleep in class.

6. Stay for the Entire Class.

   There may be times when you need to leave class early, but do not make a habit of doing so. If you do need to leave class early, you must alert the professor ahead of time and then discretely leave the classroom so as not to disturb the other students. If you do need to leave early, pick a seat close to the door to make a quick and quiet exit.

7. Avoid Signaling, Sending Signs That Class Time is Up.

   Occasionally students attempt to signal that class is over by shutting their books loudly, unzipping and zipping their backpacks, and otherwise making noises indicating that class time is complete. Some students actually get up and walk out of class. I assure you I know how to tell time. If you have a professor that seems to have a problem with ending class on time, chat with him or her outside of class.

8. Contact the Professor When You Have to Miss Class.

   When you have to miss class for legitimate reasons or when you miss class because of illness, contact the professor before the class meeting and inform him/her of your absence. You then need to obtain copies of lecture notes for *another student.* Do not, however, ask the professor in class to go over or re-lecture material you missed (for whatever reasons). And when alerting the professor a missed a class, do not ask the awful question, "are we doing (or did we do) anything important in the class I am missing/missed?"

9. Avoid strong odors

   Too much perfume, cigarette odor or other strong odors, including foods odors, can be distracting or even nauseating to students and instructors, especially those with allergies or migraine issues. Please avoid bringing strong odors into the classroom.

CELL PHONE POLICY: All cell phones must be turned OFF or MUTED before entering the classroom and properly placed in a bag or pocket (not left on a desk). Cell phone use in class inappropriate and will not be tolerated. Students found using cell phones in any way in class will lose their attendance points for that class period. Cell phones may NOT be used for calculators during exams. All cell phones must be completely out of sight for all tests/exams. Any visible cell phone during an exam will result in a 0 for that exam – no exceptions.

SCHOOL POLICIES: Please refer to BlackBoard or the TRCC website for a link to the entire policy.

- **DIGICATION:** All students are required to maintain an electronic portfolio using the College template within Digication. Digication can be accessed at https://threerivers.digication.com.

- **DISIBILITIES:** Three Rivers Community College (TRCC) is committed to the goal of achieving equal educational opportunity and full participation for individuals with disabilities. To this end, TRCC seeks to ensure that no qualified person is excluded from participation in, is denied the benefit of, or otherwise is subjected to discrimination in any of its programs, services, or activities.

- **NON-DISCRIMINATION:** Three Rivers Community College does not discriminate on the basis of race, color, religious creed, age, sex, national origin, marital status, ancestry, present or past history of mental disorder, learning disability or physical disability, sexual orientation, gender identity and expression, or genetic information in its programs and activities.

- **SEXUAL MISCONDUCT:** The Board of Regents for Higher Education (BOR) in conjunction with the Connecticut State Colleges and Universities (CSCU) is committed to ensuring that each member of every BOR governed college and university community has the opportunity to participate fully in the process of education free from acts of sexual misconduct, intimate partner violence and stalking.

ACCEPTANCE POLICY: After reading this syllabus, choosing to stay registered for this course exemplifies your acceptance of the syllabus and all policies and consequences outlined in the syllabus, If you do not agree with any of the terms in the syllabus, you are free to withdraw.

The key to success in this course is to attend every class and do all the homework when it is assigned. Ask questions when you have them, either in class or in my office. You will find it much easier to learn the new topics if you consistently keep up with the course material and homework problems!

The instructor has the right to change/modify this syllabus at any time with proper notification to the class

TENTATIVE SYLLABUS **MAT* K172 – FALL 2019**

Week of:	Chapter(s):	Topics Covered: (* denotes review topic)
8/28	*1.3	Class introduction, Functions, Function Notation, and the Graph of a Function
9/2	*1.1	*No classes on Monday (college closed) – Happy Labor Day! Rectangular Coordinates, Graphing Circles and Other Relations, **QQ#1 W 9/4**
9/9	*1.2, *1.4, 1.6, 1.5	Linear Equations and Rates of Change, Linear Functions, Special Forms, and More of Rates of Change, Linear Function Models and Real Data, Solving Equations and Inequalities, **QQ #2 M 9/9, QQ #3 W 9/11**
9/16	2.1 – 2.3	Analyzing the Graph of a Function, The Toolbox Functions and Transformations, Absolute Value Functions, Equations and Inequalities, **QQ #4 M 9/16, QQ #5 W 9/18**
9/23	2.4 – 2.6	Basic Rational Functions and Power Functions, Piecewise-Defined Functions, Variation: The Toolbox Functions in Action, **QQ #6 M 9/23, QQ #7 W 9/25**
9/30	3.1, 3.2	Complex Numbers, Solving Quadratic Equations and Inequalities, **QQ #8 M 9/30** ♦ **Exam #1 – Wednesday 10/2**
10/7	3.2 - 3.4	Quadratic Functions and Applications, Quadratic Models: More on Rates of Change, **QQ #9 M 10/7, QQ #10 W 10/9**
10/14	3.5, 3.6	The Algebra of Functions, The Composition of Functions, **QQ #11 M 10/14, QQ #12 W 10/16**
10/21	4.1 – 4.3	Synthetic Division: the Remainder and Factor Theorems, The Zeros of Polynomial Functions, Graphing Polynomial Functions, **QQ #13 M 10/21, QQ #14 W 10/23**
10/28	4.4, 4.5	Graphing Rational Functions, Additional Insights to Rational Functions, **QQ #15 M 10/28, QQ #16 W 10/30**
11/4		Catch-up, review, **QQ #17 M 11/4** ♦ **Exam #2 – Wednesday 11/6**
11/11	5.1, 5.2	One-to-One and Inverse Functions, Exponential Functions, **QQ #18 M 11/11, QQ #19 W 11/13**
11/18	5.3 – 5.5	Logarithms and Logarithmic Functions, Properties of Logarithms, Solving Exponential and Logarithmic Equations, **QQ #20 M 11/18, QQ #21 W 11/20**
11/25	9.1,	Linear Systems in Two Variables with Applications, **QQ #22 M 11/25** * No class on Wednesday 11/27 – Happy Thanksgiving!
12/2	9.2	Linear Systems in Three Variables with Applications, **QQ #23 M 12/2** ♦ **Exam #3 – Wednesday 12/4**
12/9		**QQ #24 M 12/9** ♦ **Final Exam – Wednesday 12/11**

ALEKS® Course Syllabus

Course Name:	MAT 172 College Algebra – Fall 2019	Course Code:	YRVLH-36D34
ALEKS Course:	College Algebra	Instructor:	Dr. Molkenthin
Course Dates:	Begin: 08/28/2019 End: 08/28/2020	Course Content:	280 Topics (252 goal + 28 prerequisite) / 174 accessible topics
Textbook: Coburn/Herdlick: Precalculus – Graphs and Models, 1st Ed. (McGraw-Hill)			

Objectives	Dates
1. Ch.1-Relations, Functions, and Graphs (62 topics)	08/28/2019 12:00 AM - 10/01/2019 11:59 PM
2. Ch.2-More on Functions (51 topics)	08/28/2019 12:00 AM - 10/01/2019 11:59 PM
3. Ch.3-Quadratic Functions and Operations on Functions (46 topics)	10/02/2019 12:00 AM - 11/05/2019 11:59 PM
4. Ch.4-Polynomial and Rational Functions (29 topics)	10/02/2019 12:00 AM - 11/05/2019 11:59 PM
5. Ch.5-Exponential and Logarithmic Functions (45 topics)	11/06/2019 12:00 AM - 12/03/2019 11:59 PM
6. Ch.9-Systems of Equations and Inequalities (9 topics)	12/04/2019 12:00 AM - 12/10/2019 11:59 PM

Ch.1-Relations, Functions, and Graphs (62 Topics, due on 10/01/2019 11:59 PM)

Section 1.1 (10 Topics)

Distance between two points in the plane: Exact answers
Distance between two points in the plane: Decimal answers
Midpoint of a line segment in the plane
Identifying the center and radius to graph a circle given its equation in standard form
Identifying the center and radius to graph a circle given its equation in general form: Basic
Identifying the center and radius to graph a circle given its equation in general form: Advanced
Writing the equation of a circle centered at the origin given its radius or a point on the circle
Writing an equation of a circle given its center and radius or diameter
Writing an equation of a circle given its center and a point on the circle
Writing an equation of a circle given the endpoints of a diameter

Section 1.2 (10 Topics)

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
Graphing a line given its x- and y-intercepts
Graphing a line by first finding its x- and y-intercepts
Finding slope given the graph of a line on a grid
Finding slope given two points on the line
Writing the equations of vertical and horizontal lines through a given point
Identifying parallel and perpendicular lines from coordinates
Writing and evaluating a function that models a real-world situation: Advanced

Section 1.3 (25 Topics)

Graphing a linear inequality on the number line
Writing an inequality given a graph on the number line
Graphing a compound inequality on the number line
Writing a compound inequality given a graph on the number line
Identifying functions from relations
Vertical line test
Evaluating functions: Linear and quadratic or cubic
Evaluating a rational function: Problem type 1
Evaluating a rational function: Problem type 2
Table for a square root function
Evaluating a cube root function
Evaluating functions: Absolute value, rational, radical
Variable expressions as inputs of functions: Problem type 1
Variable expressions as inputs of functions: Problem type 2
Variable expressions as inputs of functions: Problem type 3
Domain of a rational function: Excluded values
Domain of a rational function: Interval notation
Domain of a square root function: Basic
Domain of a square root function: Advanced
Finding the domain of a fractional function involving radicals
Finding an output of a function from its graph
Finding inputs and outputs of a function from its graph
Domain and range from the graph of a discrete relation
Domain and range from the graph of a continuous function
Interpreting the graphs of two functions

Section 1.4 (11 Topics)

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 $Ax + By = C$
Writing an equation of a line given its slope and y-intercept
Writing an equation in slope-intercept 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
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
Finding where a function is increasing, decreasing, or constant given the graph

Section 1.5 (3 Topics)

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

Chapter 1 Supplementary Topics (3 Topics)

Classifying slopes given graphs of lines
Finding the slope of horizontal and vertical lines
Domain and range from the graph of a piecewise function

Ch.2-More on Functions (51 Topics, due on 10/01/2019 11:59 PM)

Section 2.1 (9 Topics)

Finding intercepts of a nonlinear function given its graph
Determining if graphs have symmetry with respect to the x-axis, y-axis, or origin
Domain and range from the graph of a continuous function
Finding where a function is increasing, decreasing, or constant given the graph
Finding where a function is increasing, decreasing, or constant given the graph: Interval notation
Finding local maxima and minima of a function given the graph
Finding the absolute maximum and minimum of a function given the graph
Finding values and intervals where the graph of a function is zero, positive, or negative
Even and odd functions: Problem type 1

Section 2.2 (22 Topics)

Graphing an absolute value equation of the form $y = A|x|$
Graphing a cubic function of the form $y = ax^3$
Graphing a function of the form $f(x) = ax + b$: Integer slope
Graphing a function of the form $f(x) = ax + b$: Fractional slope
Graphing a function of the form $f(x) = ax^2$
Graphing a function of the form $f(x) = ax^2 + c$
Graphing a parabola of the form $y = (x-h)^2 + k$
Graphing a square root function: Problem type 1
Graphing a cube root function
Translating the graph of a parabola: One step
Translating the graph of a parabola: Two steps
How the leading coefficient affects the shape of a parabola
Translating the graph of an absolute value function: One step
Translating the graph of an absolute value function: Two steps
How the leading coefficient affects the graph of an absolute value function
Writing an equation for a function after a vertical translation
Translating the graph of a function: One step
Translating the graph of a function: Two steps
Transforming the graph of a function by reflecting over an axis
Transforming the graph of a quadratic, cubic, square root, or absolute value function
Finding the vertex, intercepts, and axis of symmetry from the graph of a parabola
Domain and range from the graph of a quadratic function

Section 2.3 (9 Topics)

Solving an absolute value equation: Problem type 1
Solving an absolute value equation: Problem type 2
Solving an absolute value equation: Problem type 3
Solving an absolute value equation: Problem type 4
Solving an absolute value inequality: Problem type 1
Solving an absolute value inequality: Problem type 2
Solving an absolute value inequality: Problem type 3
Solving an absolute value inequality: Problem type 4
Solving an absolute value inequality: Problem type 5

Section 2.5 (2 Topics)

Evaluating a piecewise-defined function
Graphing a piecewise-defined function: Problem type 1

Section 2.6 (5 Topics)

Writing a direct variation equation
Word problem on direct variation
Writing an inverse variation equation
Word problem on inverse variation
Word problem on combined variation

Chapter 2 Supplementary Topics (4 Topics)

Graphing an absolute value equation in the plane: Basic
Graphing an absolute value equation in the plane: Advanced
Matching parent graphs with their equations
Classifying the graph of a function

Ch.3-Quadratic Functions and Operations on Functions (46 Topics, due on 11/05/2019 11:59 PM)

Section 3.1 (6 Topics)

Using i to rewrite square roots of negative numbers
Simplifying a product and quotient involving square roots of negative numbers
Adding or subtracting complex numbers
Multiplying complex numbers
Dividing complex numbers
Simplifying a power of i

Section 3.2 (13 Topics)

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 word problem using a quadratic equation with rational roots
Solving an equation of the form $x^2 = a$ 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
Completing the square
Solving a quadratic equation by completing the square: Exact answers
Applying the quadratic formula: Exact answers
Applying the quadratic formula: Decimal answers

Solving a quadratic equation with complex roots
Discriminant of a quadratic equation
Finding the zeros of a quadratic function given its equation

Section 3.3 (11 Topics)

Finding the vertex, intercepts, and axis of symmetry from the graph of a parabola
Graphing a parabola of the form $y = x^2 + bx + c$
Graphing a parabola of the form $y = a(x-h)^2 + k$
Graphing a parabola of the form $y = ax^2 + bx + c$: Integer coefficients
Graphing a parabola of the form $y = ax^2 + bx + c$: Rational coefficients
Writing a quadratic function given its zeros
Finding the x-intercept(s) and the vertex of a parabola
Finding the maximum or minimum of a quadratic function
Word problem involving the maximum or minimum of a quadratic function
Word problem involving optimizing area by using a quadratic function
Writing the equation of a quadratic function given its graph

Section 3.4 (3 Topics)

Finding the average rate of change of a function
Finding the average rate of change of a function given its graph
Word problem involving average rate of change

Section 3.5 (4 Topics)

Sum, difference, and product of two functions
Quotient of two functions: Basic
Quotient of two functions: Advanced
Combining functions: Advanced

Section 3.6 (8 Topics)

Finding a difference quotient for a linear or quadratic function
Introduction to the composition of two functions
Composition of two functions: Basic
Composition of a function with itsel
Expressing a function as a composition of two functions
Composition of two functions: Domain and range
Composition of two functions: Advanced
Composition of two rational functions

Chapter 3 Supplementary Topics (1 Topic)

Finding a difference quotient for a rational function

Ch.4-Polynomial and Rational Functions (29 Topics, due on 11/05/2019 11:59 PM)

Section 4.1 (6 Topics)

Finding a polynomial of a given degree with given zeros: Real zeros
Polynomial long division: Problem type 1
Synthetic division
Using the remainder theorem to evaluate a polynomial
The Factor Theorem
Using a given zero to write a polynomial as a product of linear factors: Real zeros

Section 4.2 (8 Topics)

Finding all possible rational zeros using the rational zeros theorem: Problem type 1
Finding all possible rational zeros using the rational zeros theorem: Problem type 2
Using the rational zeros theorem to find all zeros of a polynomial: Rational zeros
Using the rational zeros theorem to find all zeros of a polynomial: Irrational zeros
Multiplying expressions involving complex conjugates
Finding a polynomial of a given degree with given zeros: Complex zeros
Using a given zero to write a polynomial as a product of linear factors: Complex zeros
Using the rational zeros theorem to find all zeros of a polynomial: Complex zeros

Section 4.3 (7 Topics)

Finding zeros of a polynomial function written in factored form
Finding zeros and their multiplicities given a polynomial function written in factored form
Finding x- and y-intercepts given a polynomial function
Determining the end behavior of the graph of a polynomial function
Determining end behavior and intercepts to graph a polynomial function
Matching graphs with polynomial functions
Inferring properties of a polynomial function from its graph

Section 4.4 (7 Topics)

Domain of a rational function: Interval notation
Finding the asymptotes of a rational function: Constant over linear
Finding the asymptotes of a rational function: Linear over linear
Finding horizontal and vertical asymptotes of a rational function: Quadratic numerator or denominator
Graphing a rational function: Constant over linear
Graphing a rational function: Linear over linear
Matching graphs with rational functions: Two vertical asymptotes

Section 4.5 (1 Topic)

Graphing rational functions with holes

Ch.5-Exponential and Logarithmic Functions (45 Topics, due on 12/03/2019 11:59 PM)

Section 5.1 (7 Topics)

Horizontal line test
Determining whether two functions are inverses of each other
Inverse functions: Linear, discrete
Inverse functions: Quadratic, square root
Inverse functions: Cubic, cube root
Inverse functions: Rational
Finding, evaluating, and interpreting an inverse function for a given linear relationship

Section 5.2 (13 Topics)

Table for an exponential function
Graphing an exponential function and its asymptote: $f(x)=b^x$
Graphing an exponential function and its asymptote: $f(x) = a(b)^x$
Graphing an exponential function and its asymptote: $f(x)=b^{-x}$ or $f(x)=-b^{ax}$
Translating the graph of an exponential function
Finding domain and range from the graph of an exponential function
The graph, domain, and range of an exponential function
Transforming the graph of a natural exponential function
Graphing an exponential function and its asymptote: $f(x) = a(e)^{x-b} + c$
Using a calculator to evaluate exponential expressions
Evaluating an exponential function that models a real-world situation
Using a calculator to evaluate exponential expressions involving base e
Solving an exponential equation by finding common bases: Linear exponents

Section 5.3 (8 Topics)

Using a calculator to evaluate natural and common logarithmic expressions
Converting between logarithmic and exponential equations
Converting between natural logarithmic and exponential equations
Evaluating logarithmic expressions
Translating the graph of a logarithmic function
Graphing a logarithmic function: Basic
The graph, domain, and range of a logarithmic function
Domain of a logarithmic function: Advanced

Section 5.4 (9 Topics)

Solving an equation of the form $\log_b a = c$
Basic properties of logarithms
Expanding a logarithmic expression: Problem type 1
Expanding a logarithmic expression: Problem type 2
Writing an expression as a single logarithm
Change of base for logarithms: Problem type 1
Solving a multi-step equation involving a single logarithm: Problem type 1
Solving a multi-step equation involving a single logarithm: Problem type 2
Solving an exponential equation by using natural logarithms: Decimal answers

Section 5.5 (7 Topics)

Evaluating an exponential function with base e that models a real-world situation
Solving a multi-step equation involving natural logarithms
Solving an equation involving logarithms on both sides: Problem type 1
Solving an equation involving logarithms on both sides: Problem type 2
Solving an exponential equation by using logarithms: Decimal answers, basic
Solving an exponential equation by using logarithms: Decimal answers, advanced
Solving an exponential equation by using logarithms: Exact answers in logarithmic form

Chapter 5 Supplementary Topics (1 Topic)

Writing an exponential function rule given a table of ordered pairs

Ch.9-Systems of Equations and Inequalities (9 Topics, due on 12/10/2019 11:59 PM)

Section 9.1 (6 Topics)

Identifying solutions to 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 2x2 system of linear equations that is inconsistent or consistent dependent

Section 9.2 (3 Topics)

Solving a 3x3 system of linear equations: Problem type 1
Solving a 3x3 system of linear equations: Problem type 2
Solving a 3x3 system of linear equations that is inconsistent or consistent dependent

GRADE TALLY:

	Value	Points Earned
Quiz #1	**5**	
Quiz #2	**5**	
Quiz #3	**5**	
Quiz #4	**5**	
Quiz #5	**5**	
Quiz #6	**5**	
Quiz #7	**5**	
Quiz #8	**5**	
Quiz #9	**5**	
Quiz #10	**5**	
Quiz #11	**5**	
Quiz #12	**5**	
Quiz #13	**5**	
Quiz #14	**5**	
Quiz #15	**5**	
Quiz #16	**5**	
Quiz #17	**5**	
Quiz #18	**5**	
Quiz #19	**5**	
Quiz #20	**5**	
Quiz #21	**5**	
Quiz #22	**5**	
Quiz #23	**5**	
Quiz #24	**5**	
Exam #1	**100**	
Exam #2	**100**	
Exam #3	**100**	
ALEKS	**200**	
Final Exam	**200**	**Contact instructor for points earned**
Attendance & Participation	**50**	**Contact instructor for points earned**

Only count top 20 scores –

Total : 100 points