Instructor Name: John Thomason  
Email: jthom@austincc.edu  
Office Phone Number: TBA  
Office Location: ACCelerator  
Office Hours: TTh 11:30am-12:00pm, 2:45pm-3:15pm  
Course Name/Number: MATD 0422  Section: 041  Synonym: 47730  
MATD 0423  Section: 041  Synonym: 49267  
MATD 0424  Section: 041  Synonym: 48586  
Meeting Days & Times: TTh 1:00pm-2:45pm  

- Cell phones should stay dark, silent, and out of reach during class.  
- Food and tobacco products, including e-cigs, are not allowed in the computer lab.  
  [Drinks with lids and tidy, silent snack items are OK.]  

Course Description: Developmental Mathematics with ALEKS courses offer an individualized developmental math curriculum. Students will take an initial knowledge check which will generate their individualized path through developmental math. Topics include: operations on real numbers, analyzing graphs, relating simple algebraic concepts to geometry, solving simple linear equations, and applications. Prepared students will continue with topics such as exponents, solving linear and quadratic equations, solving systems of linear equations, and operations on polynomials.  

Course Rationale: This course is designed to prepare students for various college-level courses. After mastering all topics in this course, students may enroll in a number of courses in science, mathematics and various technical areas. These include General College Physics, General Chemistry, Magnetism and DC Circuits, AC Circuits, Manufacturing Materials and Processes, Math for Business and Economics, and College Algebra. OR, for students going into MATH 1332 (College Mathematics) or MATH 1342 (Elementary Statistics), they would need to master the topics in Objectives 1 – 8 and then complete the Math portion of the TSI by passing a state-approved test. If the student does not pass this test, he or she may instead take MATD 0385 or MATD-0455, which will prepare the student for MATH 1332 or MATH 1342. See the following website for more information.  
https://sites.google.com/a/austincc.edu/math-students/courses/developmental-math-at-hlc-0421/0421-to-devcourse  

Course Prerequisite: None  

Textbook/Required Materials: The cost of ALEKS software and required student notebook has been included in your tuition payment. There is no textbook to purchase; you will use an online text included with the software.  

Please bring the following items to every class:  
1. your ALEKS notebook  
2. pencils, erasers  
3. a calculator (Please refer to the calculator policy on next page.)  
4. ear buds or head phones  

Email Requirement: There is an email tool within ALEKS. To access it, click on the three bars at the top of your ALEKS homepage, just to the left of the word “ALEKS” and then click on “Message Center.” Please use only ALEKS email to correspond with your instructor. That will make it much easier for both of us to keep up-to-date. If you wish, you can have copies of your ALEKS email sent to your ACC email address. To do that, on your ALEKS homepage click on the Down Arrow to the right of your name at the top of the page, then click on "Settings," and then click the indicated button to “Forward” your emails. You are responsible for checking your ALEKS emails between class meetings. We seldom meet as a group and email is the only way your instructor has of giving you important information about assignments and details about how to use ALEKS.
# Calculator Policy for Developmental Math with ALEKS Courses

<table>
<thead>
<tr>
<th>If you are working on…</th>
<th>…then the policy is.....</th>
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</thead>
<tbody>
<tr>
<td>The Initial Knowledge Check</td>
<td>No calculators of any kind are allowed. On some problems, ALEKS may display a calculator that you can use for that problem only. If the calculator tab is inactive, then you are working on a no-calculator question and you should work everything out by hand.</td>
</tr>
<tr>
<td>Objectives 1 &amp; 2</td>
<td>No calculators are allowed for any work done in these objectives, including the automatic knowledge checks that occur. Your instructor may check for evidence of work done by hand on knowledge checks.</td>
</tr>
<tr>
<td>Objectives 3 &amp; 4</td>
<td>A 4-function calculator is allowed for any work done in these objectives, including the automatic knowledge checks that occur. <strong>NOTE</strong>: If you end up taking a test over Objectives 1 – 3 or 1 – 4, you will ONLY be allowed to use a 4-function calculator during the test. [These calculators do NOT make calculations with fractions!]</td>
</tr>
<tr>
<td>Objectives 5 through 12</td>
<td>A non-graphing scientific calculator is allowed (and recommended) for any work done in these objectives, including the automatic knowledge checks that occur. <strong>NOTE</strong>: If you end up taking a test including any of the Objectives 5 – 12, you will be allowed to use a non-graphing scientific calculator during the test.</td>
</tr>
</tbody>
</table>

## Grade Information

Students should expect to receive one of the following grades* at the end of the semester:

- **A** = 90-100, **B** = 80-89, **C** = 70-79, **D** = 60-69, **F** = below 60.

*Note: Grades of IP (In Progress) are only available for MATD 0424 courses.

Course grades will be calculated according to the following categories:

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>15%</td>
<td>Class Attendance</td>
<td>Attend every class meeting—on time!—for the entire class period.</td>
</tr>
<tr>
<td>25%</td>
<td>Time in ALEKS</td>
<td>Spend at least 8 productive hours/week on ALEKS (includes class time + homework time).</td>
</tr>
<tr>
<td>25%</td>
<td>Progress in ALEKS</td>
<td>Complete at least 20 topics per week (subject to change, according to instructor's advice).</td>
</tr>
<tr>
<td>10%</td>
<td>Written Work</td>
<td>Bring your notebook to every class to take notes, show work, complete handouts, and test(s).</td>
</tr>
<tr>
<td>5%</td>
<td>Mid-Term Test</td>
<td>Take a test at the middle of the semester covering topics you studied so far this semester.</td>
</tr>
<tr>
<td>+20%</td>
<td>Final Test</td>
<td>Take a test at the end of the semester covering topics you studied this semester.</td>
</tr>
<tr>
<td>100%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Class Attendance**: It is important to attend class each day so that your instructor can help you reach your goals quickly and effectively. Also, your instructor may give you a personalized assignment or spontaneous notebook check at any time, without prior notice. If your attendance or compliance with other course policies is unsatisfactory, the instructor may withdraw you from the class. More information can be found in the Withdrawal Policy on the next page. **Students with 4 or more absences may be withdrawn from the class.**

**Time in ALEKS**: The most successful ALEKS students are those who make an appropriate time commitment each week. That's why we have a minimum time requirement—we want you to be successful, too! All students are required to log in 8 productive hours per week of time in ALEKS. These hours must be productive time, meaning you can't log in and go do something else for several hours. Instructors will be able to closely monitor student activity on ALEKS and help students who are not using their ALEKS time productively. **Think of your time in ALEKS as an assignment to be completed each week.** Any exceptions to the weekly time requirement must be approved by the instructor in advance, if possible. Students who work less than the required time will receive a grade penalty. Those who work more than the required time may finish their pie and be DONE with developmental mathematics sooner! **Students who repeatedly earn less than 70% for Time in ALEKS may be withdrawn from the class.**

**Progress in ALEKS**: Students are required to work at a productive pace throughout the semester. For most students, that will translate into a requirement of mastering 20 topics per week. **Think of topics as assignments to be completed each week.** The number of topics may be raised or lowered by the instructor at any time. Your instructors will periodically meet with you to discuss your pace and progress, and answer any questions you may have along the way. **Students who repeatedly earn less than 70% for Progress in ALEKS may be withdrawn from the class.**

Topic mastery is determined by ALEKS progress knowledge checks. **(Think: “knowledge check” = “quiz”)** Each of these progress knowledge checks will focus on topics you have been working on recently. However, ALEKS may include “bonus” questions you haven't seen before, just to see if you're ready! There is no grade on
progress knowledge checks—only pie adjustments. This means that you may lose credit for topics you had previously learned but did not retain, and gain credit for topics you have newly mastered. Knowledge checks can be taken during class or outside of class. **Every knowledge check question must be copied and worked on the appropriate page in your notebook**—this counts towards your “Written Work” grade (see next item.)

**Written Work:** Even though this is a computer-based course, clear and organized written work will be required. Most of this written work will be done in your ALEKS notebook. Notebook requirements may include taking notes, working examples, completing worksheets, and showing work from knowledge checks. Some written homework assignments may be made with specific due dates. On those, the grade will be reduced by 25% for every class day it is late. All students will also take at least one practice test for the Mid-term exam and at least one practice test for the Final Exam. Work from the practice tests will be shown in the notebook as well. Instructors may choose to grade all or part of any student’s notebook at any time, with or without prior warning. Instructors will pay particular attention to the way students show their work on knowledge checks and practice tests. The goal for showing work is to make your solving strategy clear to the readers (you and your instructor). Showing clear work will also help you when you go back to review any questions you got wrong. Plus, clear written work will be expected in future math courses.

**Note:** When it comes to preparing for your Mid-term and Final Exams, your notebook will be your most useful resource for reviewing the material that is covered on the tests. Your notes will be in your words, at the level of detail you need, and emphasizing the problems you found to be more difficult.

**Tests:** All students will take a mid-term exam at the middle of the semester and a final test at the end of the semester. Generally, the mid-term exam will cover your two most recently covered objectives at that point in the semester and the final test will cover your four most recently covered objectives at the end of the semester. Test grades do NOT affect your pie, but they do affect your course grade. There is no make up for the mid-term exam. However, on the final exam if you make below 70, you will be allowed to take another final exam to bring your final exam grade up to 70. The re-take final exam will consist of different questions from the same four objectives as the original final exam. There will be a practice mid-term exam available at least one week before the mid-term exam and there will be several practice final exams available at least one week before the final exam.

**What Happens Next Semester?** Your instructor will discuss this with you individually at the end of this semester. If you have not finished your developmental math, we hope you will sign up for ALEKS math next semester to keep working with your pie. You will pick up where you left off from the previous semester.

**Exception:** if you get a D, F, or W in MATD 0421/0321/0221, you must start over in the pie when you take an ALEKS course in the future. The start-over policy only applies to students who made a D, F, or W in their first semester ALEKS course. Appeals may be submitted to the assistant department chair at Highland Campus.

If you choose to switch to a traditional classroom course, here are the general guidelines:

<table>
<thead>
<tr>
<th>If these objectives are completed (at 90% or higher) ...</th>
<th>...AND if a Final Test is passed (at 70% or higher) that includes...</th>
<th>...then a student is eligible to register for this course next semester...</th>
</tr>
</thead>
<tbody>
<tr>
<td>At least through Objective 4, possibly up through Objective 7</td>
<td>Objective 4*, plus other assigned objectives [*Obj 5, if working in 2nd Pie]</td>
<td>Elementary Algebra (MATD 0370) or Developing Math Thinking (MATD 0385)*</td>
</tr>
<tr>
<td>At least through Objective 8, possibly up through Objective 11</td>
<td>Objective 8, plus other assigned objectives</td>
<td>Intermediate Algebra (MATD 0390)</td>
</tr>
<tr>
<td>Through Objective 12 (entire pie)</td>
<td>Obj. 9 – 12 [Student becomes TSI Complete]</td>
<td>College Algebra (MATH 1314)</td>
</tr>
</tbody>
</table>

*MATD 0385 is a developmental math course designed ONLY for students headed into College Mathematics or Statistics. Passing MATD 0385 makes students TSI complete.

**DEPARTMENTAL & COLLEGE POLICIES**

**Withdrawal Policy:** It is the responsibility of each student to ensure that his or her name is removed from the roll should he or she decide to withdraw from the class. The instructor does, however, reserve the right to drop a student should he or she feel it is necessary. If a student decides to withdraw, he or she should also verify that the withdrawal is submitted before the Final Withdrawal Date. The student is also strongly encouraged to retain their copy of the withdrawal form for their records. Students who enroll for the third or subsequent time in a course taken since Fall 2002 may be charged a higher tuition rate for that course. Furthermore, state law permits students to withdraw from no more than six courses during their entire undergraduate career at Texas public colleges or universities. With certain exceptions, all course withdrawals automatically count towards this limit. Details regarding this policy can be found in the ACC college catalog.
***Please be aware that if you or I withdraw you from the course, you may suffer TSI-related consequences (read TSI warning below). The deadline for withdrawing from this course is April 25.

**Reinstatement Policy:** Students who withdrew or were withdrawn generally will not be reinstated unless they have completed all homework and tests necessary to place them at the same level of course completion as the rest of the class.

**Incomplete Grade Policy:** Incomplete grades are not given in this course since all students may pick up where they left off in the subsequent semester.

**TSI Warning for Students who are not TSI complete**

Students who are not TSI complete in math are not allowed to enroll in any course with a math skill requirement. All students are required to be "continually in attendance" in order to remain enrolled in this course. If this is the only developmental class you are enrolled in, and you withdraw yourself from this course or are withdrawn by your instructor, then:

a) You may be withdrawn from courses that you should not be enrolled in, such as any class with a math skill requirement.

b) You will have a hold placed on your registration for the following semester. The Hold will require that you register for the next semester in person with an advisor or counselor and that you work with the Developmental Math Advisor during that semester.

c) You will continue to face more serious consequences, up to being restricted to only registering for developmental courses, until you complete the required developmental math course or satisfy the TSI requirement in another way.

More information can be found at [http://www.austincc.edu/math/tsiwarning.htm](http://www.austincc.edu/math/tsiwarning.htm).

*If you are unsure whether or not this warning applies to you, see an ACC advisor immediately.*

**Importance of Completing Developmental Course Requirements**

The first steps to achieving any college academic goal are completing developmental course requirements and TSI requirements. The highest priority for students who are required to take developmental courses must be the developmental courses. TSI rules state that students are allowed to take college credit courses, if they are fulfilling their developmental requirements. Because successful completion of development courses is so important, ACC will intervene with any student who is not successfully completing development requirements. This intervention can mean a hold on records, requiring developmental lab classes, working with the Developmental Math Advisor, and monitoring during the semester.

**Testing Center Policy:** Under certain circumstances, an instructor may have students take an examination in a testing center. Students using the Academic Testing Center must govern themselves according to the Student Guide for Use of ACC Testing Centers and should read the entire guide before going to take the exam. To request an exam, one must have:

- **ACC Photo ID** ([http://www.austincc.edu/apply-and-register/enrollment-steps#obtain-student-id-card](http://www.austincc.edu/apply-and-register/enrollment-steps#obtain-student-id-card))
- Course Abbreviation (e.g., MATD)
- Course Number (e.g., 0421)
- Course Synonym (e.g., 12345)
- Course Section (e.g., 001)
- Instructor's Name (e.g., Professor Al G. Brah)

Do **NOT** bring cell phones to the Testing Center. Having your cell phone in the testing room, **regardless of whether it is on or off**, will revoke your testing privileges for the remainder of the semester. ACC Testing Center policies can be found at [http://www.austincc.edu/support-and-services/services-for-students/testing-services/instructional-testing](http://www.austincc.edu/support-and-services/services-for-students/testing-services/instructional-testing)

**Instructonal Methodology:** Software is the primary delivery method for the course material in the classroom. An assigned instructor will also be present to answer individual questions and offer group tutoring sessions as needed.

**Statement on Scholastic Dishonesty:** A student attending ACC assumes responsibility for conduct compatible with the mission of the college as an educational institution. Students have the responsibility to submit coursework that is the result of their own thought, research, or self-expression. Students must follow all instructions given by faculty or designated college representatives when taking examinations, placement assessments, tests, quizzes, and evaluations. Actions constituting scholastic dishonesty include, but are not limited to, plagiarism, cheating, fabrication, collusion, and falsifying documents. Penalties for scholastic dishonesty will depend upon the nature of the violation and may range from lowering a grade on one assignment to an "F" in the course and/or expulsion from the college. See the Student Standards of Conduct and Disciplinary Process and other policies at [http://www.austincc.edu/current/needtoknow](http://www.austincc.edu/current/needtoknow)

**Student Rights and Responsibilities:** Students at the college have the rights accorded by the U.S. Constitution to freedom of speech, peaceful assembly, petition, and association. These rights carry with them the responsibility to accord the same rights to others in the college community and not to interfere with or disrupt the educational process. Opportunity for students to examine and question pertinent data and assumptions of a given discipline, guided by the evidence of scholarly research, is appropriate in a learning environment. This concept is accompanied by an equally demanding concept of responsibility on the part of the student. As willing partners in learning, students must comply with college rules and procedures.
Statement on Students with Disabilities: Each ACC campus offers support services for students with documented disabilities. Students with disabilities who need classroom, academic or other accommodations must request them through Student Accessibility Services (SAS). Students are encouraged to request accommodations when they register for courses or at least three weeks before the start of the semester, otherwise the provision of accommodations may be delayed. Students who have received approval for accommodations from SAS for this course must provide the instructor with the ‘Notice of Approved Accommodations’ from SAS before accommodations will be provided. Arrangements for academic accommodations can only be made after the instructor receives the ‘Notice of Approved Accommodations’ from the student.

Statement on Student Discipline: Classroom behavior should support and enhance learning. Behavior that disrupts the learning process will be dealt with appropriately, which may include having the student leave class for the rest of that day. In serious cases, disruptive behavior may lead to a student being withdrawn from the class. ACC’s policy on student discipline can be found in the Student Handbook under Policies and Procedures or on the web at: http://www.austincc.edu/handbook

Safety Statement: Austin Community College is committed to providing a safe and healthy environment for study and work. You are expected to learn and comply with ACC environmental, health and safety procedures and agree to follow ACC safety policies. Additional information on these can be found at http://www.austincc.edu/ehs. Because some health and safety circumstances are beyond our control, we ask that you become familiar with the Emergency Procedures poster and Campus Safety Plan map in each classroom. Additional information about emergency procedures and how to sign up for ACC Emergency Alerts to be notified in the event of a serious emergency can be found at http://www.austincc.edu/emergency/.

Use of ACC email: All College e-mail communication to students will be sent solely to the student’s ACCmail account, with the expectation that such communications will be read in a timely fashion. ACC will send important information and will notify you of any college related emergencies using this account. Students should only expect to receive email communication from their instructor using this account. Likewise, students should use their ACCmail account when communicating with instructors and staff. Instructions for activating an ACCmail account may be found at: http://www.austincc.edu/accmail/index.php

Student And Instructional Services: ACC strives to provide exemplary support to its students and offers a broad variety of opportunities and services. Information on these services and support systems is at: http://www.austincc.edu/s4/

ACC Learning Labs provide free tutoring services to all ACC students currently enrolled in the course to be tutored. The tutor schedule for each Learning Lab may be found at: http://www.autincc.edu/tutor/students/tutoring.php

For help setting up your ACCeID, ACC Gmail, or ACC Blackboard, see a Learning Lab Technician at any ACC Learning Lab.

Learning Outcomes for Developmental Math with ALEKS Note: Due to the individualized nature of this course, not all students are expected to complete all learning outcomes.

Upon successful completion of this course, a student will be able to

1. Perform operations involving whole numbers, integers, fractions, decimals, percents, signed exponents, scientific notation, ratios and proportions.
2. Simplify numerical and variable expressions using commutative properties, associative properties, distributive properties, order of operations, exponents, and combining like terms.
3. Solve applied problems by defining variable expressions, writing a linear equation, solving the equation, and writing an answer to the question in context. Problems requiring quadratic equations, single linear equations, systems of linear equations, direct and inverse variation are also included.
4. Analyze, interpret, and solve problems from different types of graphs, such as line graphs, bar graphs, pictographs, and circle graphs and geometric figures such as rectangular solids and cylinders.
5. Use appropriate forms of linear equations to identify slope, intercepts, and to graph lines. Find linear equations from given points and graphs of lines. Find solutions to systems of two equations by graphing.
6. Simplify, factor, and perform basic operations on algebraic expressions, including polynomials, rational and radical expressions, complex fractions, and complex numbers.
7. Demonstrate understanding and knowledge of properties of functions, which include evaluation, domain and range, related equations, and basic operations.
8. Solve one-variable linear, two-variable linear, absolute value, rational, radical, and quadratic equations by symbolic methods including completing the square, and solving linear inequalities.
9. Appropriately use forms and formulas, including perimeter, area, volume, similarity, the Pythagorean Theorem, the quadratic formula, midpoint, distance, and equations of circles and lines.

10. Graph linear equations and inequalities, including systems of each; also quadratic functions, absolute value functions, and circles.

11. Use mathematical language, symbols, and notation to communicate mathematical concepts, demonstrate reasoning, and solve problems.

Course Objectives
The following objectives are listed in a sequence ranging from the simple to the more complex. Each student will be directed towards the topics for which the individual student has not demonstrated mastery. As such, this document should not be viewed as a chronological guide to the course, although some elements naturally will precede others. Rather, this document represents a pallet of topics from which each student’s coursework will be built. A comment about vocabulary: This document uses the word “objective” to represent a specific item of material; ALEKS software uses the word “objective” to represent a more general area of study, such as a chapter in a textbook. ALEKS uses the word “topic” to represent a specific item of material, although ALEKS topics are smaller in scope than the items listed in this document.

Overall Objectives:
1. Students will feel a sense of accomplishment in their increasing ability to use mathematics to solve problems of interest to them or useful in their chosen fields. Students will attain more positive attitudes based on increasing confidence in their abilities to learn mathematics.
2. Students will learn to understand material using standard mathematical terminology and notation when presented either verbally or in writing.
3. Students will improve their skills in describing what they are doing as they solve problems using standard mathematical terminology and notation.

Beginning Computational:
1. Write the standard form of a whole number or decimal number
2. Round whole numbers and decimal numbers; use rounding to estimate values involving arithmetic
3. Perform the four basic arithmetic operations (addition, subtraction, multiplication and division) on whole numbers, integers, rational numbers, and decimals
4. Solve application problems involving the four basic operations on whole numbers, integers, rational numbers, and decimals
5. Identify the order relation between two whole numbers, integers, rational numbers, and decimals
6. Simplify exponential expressions with whole number exponents and integral exponents
7. Use the order of operations to simplify expressions involving whole numbers, whole number exponents, grouping symbols, integers, rational numbers, and decimals with the four basic arithmetic operations
8. Find prime factors of whole numbers
9. Find the least common multiple of two or more whole numbers
10. Simplify fractions to lowest terms
11. Convert in all directions between improper fractions, mixed numbers, decimals, and percents
12. Identify and use properties of real numbers to simplify expressions

Polynomials:
1. Identify terms of a polynomial, and classify polynomials by number of terms; distinguish between expressions that are polynomials and that are not
2. Use the exponent laws to simplify algebraic expressions involving whole number exponents
3. Use the order of operations to evaluate variable expressions and formulas
4. Simplify polynomials by combining like terms and using the distributive property
5. Add and subtract polynomials
6. Multiply monomials to polynomials, binomials to binomials, and binomials to trinomials
7. Divide a polynomial by a monomial and by a binomial
8. Factor polynomials in one or more variables (including factoring out the greatest common factor, factoring by grouping, factoring trinomials in which the leading coefficient is one, factoring trinomials in which the leading coefficient is not one, and factoring the difference of two squares)

Geometry & Statistics:
1. Know the appropriate vocabulary and facts about angles, triangles, rectangles, squares, circles
2. Find perimeters and areas of rectilinear figures and circles; distinguish between perimeter and area
3. Use the Pythagorean Theorem
4. Find complementary and supplementary angles
5. Find angles associated with parallel lines cut by a transversal
6. Interpret graphs (pictographs, circle graphs, bar graphs, and line graphs) and analyze data
7. Determine mean, median, and mode
Advanced Computational:
1. Understand and use the exponent laws involving integer exponents
2. Convert numbers into and out of scientific notation and perform multiplication and division with numbers written in scientific notation
3. Evaluate a function using function notation
4. Find the domain of a function
5. Perform elementary arithmetic operations with functions
6. Perform division of polynomials
7. Determine for which value(s) of the variable a rational expression is undefined
8. Simplify rational expressions containing monomials, binomials, and trinomials
9. Perform elementary arithmetic operations with rational expressions that require factoring up to and including the sum or difference of cubes
10. Simplify a complex fraction, including one with negative exponents.
11. Simplify an expression with fractional exponents
12. Simplify a radical expression, including rationalizing a monomial or binomial denominator.
13. Find decimal approximations for radical and rational expressions
14. Perform elementary arithmetic operations with complex numbers

Equation and Inequality Solving:
1. Solve percent equations and proportions
2. Solve linear equations in one variable involving integral, decimal and fractional coefficients and solutions
3. Solve and graph linear equations and linear inequalities
4. Solve an absolute value equation
5. Solve a rational equation, including one with a quadratic expression in the denominator
6. Solve an equation with one radical
7. Recognize an extraneous root
8. Find solutions to quadratic equations using factoring and using the principle of square roots
9. Recognize a need to use the quadratic formula to solve quadratic equations and solve quadratic equations by using the quadratic formula when some simplification of square roots is needed

Using Forms and Formulas:
1. Graph a function, such as a simple absolute value or rational function, by completing a table and plotting points
2. Solve a quadratic equation with real or non-real solutions
3. Find the midpoint and the distance between two points
4. Complete a square to rewrite an equation for a circle in standard form and identify its center and radius
5. Determine if a formula, correspondence, table or graph represents a function

Graphing:
1. Identify the relationship between the solution of a linear equation in 2 variables and its graph on the Cartesian plane
2. Understand and use the concepts of slope and intercept
3. Determine slope when two data points are given
4. Graph a line given either two points on the line or one point on the line and the slope of the line
5. Write an equation of a line given one point on the line and the slope of the line, or two points on the line
6. Identify lines given in standard, point-slope, or slope-intercept forms and sketch their graphs
7. Graph and solve a system of linear equations on the Cartesian plane
8. Graph a linear inequality on the Cartesian plane
9. Graph a system of linear inequalities on the Cartesian plane
10. Graph and analyze a linear and quadratic function
11. Sketch a quadratic function, written in the form \( f(x) = a(x-h)^2 + k \), using transformations
12. Sketch an absolute value function, written in the form \( f(x) = |x| + c \) or \( f(x) = |x| + b \), using transformations
13. Sketch a circle from its standard form

Applications:
1. Represent English descriptions of numerical relationships in algebraic form
2. Solve applications involving percents, proportions, linear equations, and rational expressions
3. Solve application problems including, but not limited to, linear and quadratic models, direct and inverse variation, and those requiring 2x2 systems of linear equations