

AL 125 MATHEMATICS

Concordia University Wisconsin

STUDENT MODULE

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revised for the Second Edition of the textbook
and other minor editing
by Mike Weidner
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by Jim Akers
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SCHOOL OF ADULT EDUCATION PROGRAM REMINDERS

1. Each student must be registered to take each module and must have paid by the first session or have enough financial aid in his/her account balance to cover the cost. Students using employer reimbursement must, nevertheless, pay by the first session.
2. Students should pick up books and the course module at least one week before the first session. The books are loaned to the student and must be returned within two weeks of the last session or the student will be charged for them. The assignment(s) due the first week should be completed and ready to turn in to the instructor at the first session. Fifteen to twenty hours of preparation are expected for each session of a module.
3. Research papers, response papers and reports should be typed/word processed following the format guidelines as stated on the Concordia Style Sheet. All students should give proper credit to others for their ideas and not plagiarize in any papers submitted for CUW courses. **Plagiarism is a serious offense and can result in course failure or dismissal from the program.**
4. If all the required material for a module has not been handed in by the final session of the module, the student may request an extension, and at the discretion of the instructor, receive a grade of "I" for the module. The instructor will determine the due date, which may not exceed three weeks.
5. If the "I" has not been resolved by the due date, the student will receive an "F" for the module. The "F" will remain on the student's transcript. When the module is retaken the higher grade will be computed into the GPA. See item #7 below for retake limitations.
6. A student who withdraws before the first class session, but within two weeks before the class, will be assessed a \$50 drop fee. Students who withdraw after the first week of class but before the second week will be charged 25% of the class tuition. If a student drops a module after the second session, he or she will receive a grade of "NC" (no credit). The "NC" designation does not affect the grade point average.
7. There will be no refund for those withdrawing after the second class session, but the student will be allowed to retake the course at no charge at a future date. Students who receive an "F" or an "NC" will be allowed to retake the course. The no-charge retake option will be limited to one per module and one per academic year (July 1st through June 30th). The retake must be completed within twelve months of the end of the original course.
8. Because modules in the program are only four to six weeks in length, **it is required that students attend each session.** If emergency circumstances dictate missing a session, please notify the center secretary and the instructor. Students are expected to attend all class periods of the courses for which they are registered. Absence from a course may result in a lower grade, depending on the professor's grading policy. The determination of what constitutes excessive absence in any course rests with the professor conducting that course.
9. Please refer to the *School of Adult and Continuing Education Student Handbook* for clarification of all policies.

Rev 12/07

INTRODUCTION

Mathematics influences every part of everyday life. We do not always see mathematics in action, but it is used in making many decisions. In order to function in the 21st Century, it is important to have an understanding and be prepared to deal with mathematics in all facets of life.

For example: What does it mean that the "normal" range for blood glucose is 80-115 mg/dL? Which route gives the shortest distance? What values of variables will give an optimal solution? What is the reliability of a part for our cars?

Mathematics is not just computation and formulas. It encompasses a great many areas of thinking. Several of these will be discussed in this class. Consequently, this course will probably not look like a mathematics course. However, a great deal, and wide variety, of mathematics will be studied.

Solving Problems

The need for mathematics arises from the need to solve problems. This course will provide you with a foundation for problem solving, using mathematics in solving problems, and using mathematics in making decisions.

Our Paradigms

Many times it is necessary to break out of our usual thinking mode (paradigm) in order to view ideas from new, fresh, and creative perspectives. The assignments to be done before Session #1 are of this nature. In doing homework, it is encouraged that you discuss ideas and activities with others. Others may be children, adults you work with or live with, friends, or a person you have just met.

The First Assignment

The first assignment of any module is often the hardest since you need to read and think without interaction or communication with other students or the instructor. This may be especially true of this module since it will look at topics you may never have encountered before. Approaches to topics may not be familiar. Do your best, and come to the first session with questions.

Calculators

The calculator used in this class is the Texas Instruments graphing calculator model TI-83 (or TI-83+). This is one of the new generations of calculators—graphing calculators. Although most of the calculations can be done on an ordinary scientific calculator using parentheses and a hierarchy of operations, graphing, statistics, and solving equations cannot.

The way of thinking in using this calculator may be new to you. Be patient with yourself; consult the calculator guide; seek assistance from your instructor when needed.

Homework

The homework assigned is for you to use in learning the concepts. Answers to all problems are found either in the back of the textbook or in the module.

All assignments are to be turned in. Since you may wish to have the homework from which to study, it is suggested that you make a photocopy of it before turning it in.

All assignments have a check sheet. You are to evaluate your learning before turning in the homework. Since all answers are in the back of the textbook, this is easy to do. Please check your answers before each class, and come to class with questions you wish to discuss.

For each assignment:

1. Start each new page problems on a new sheet of paper.
2. Put your name, phone number, and date the assignment is due in the upper right corner of the paper.
3. Write the text page number and all the problem numbers for that page on the first line.
4. Please use pencil and a good erasure. If you must use pen, use correction fluid when correcting mistakes. Please avoid scribbled out errors.
5. List the problem number in the left margin.
6. Show all you work for the problem. Answers are not enough.
7. Circle the answer. Be sure to write it in terms of the problem.
For example: The side of the square is 5 inches.

A suggest format for doing homework follows. It is helpful if you start each new exercise set on a new page.

| | |
|--------|--|
| | Your name Your phone number Date the assignment is due |
| | Textbook Page # ____ Problems # ____, ____, ____, etc. |
| # ____ | Show all your work. Circle your answer. Write it in terms of the problem |
| # ____ | Show all your work. Circle your answer. Write it in terms of the problem |
| | etc. |

About the Assignments

It is okay if you need to do some thinking and/or struggle with the problems. You do not need to be "swift" on this material. That is what learning is all about.

Doing the Homework

If you have difficulty with the problems, or do not recall how to do them, you may need to read the portion of the text for the material you need to learn or review in detail.

Extra Practice

Do more problems if you need more practice on the first assignment. More problems can be found in the Chapter Review Exercises, such as seen on pages 47-50 and Chapter Test on pages 50-51.

Need Help?

If these concepts are totally new to you, or you feel you need some extra help, there are several options:

1. Read and work through the material and do the problems in the following assignment. If you can do these, even with some difficulty, you are ready for this class.
2. Arrange for a tutor to help you review the ideas in which you are weak.
3. View videotapes on algebra available at many places: Concordia University Library, local public library, or local video rental stores.
4. Drop this class and take AL 122 Foundations of Algebra
5. Drop this class and take MATH 122 Intermediate Algebra in the traditional program at Concordia University Wisconsin.
6. Drop this class and take a general mathematics, elementary algebra, or intermediate algebra class at another institution.

Quizzes

Four, 75-point quizzes are to be completed. These may be given during a class session or assigned as a take-home quiz at the discretion of the instructor. Due dates will also be set by the instructor. These quizzes are for you to demonstrate your learning of the material and to show problem-solving progress.

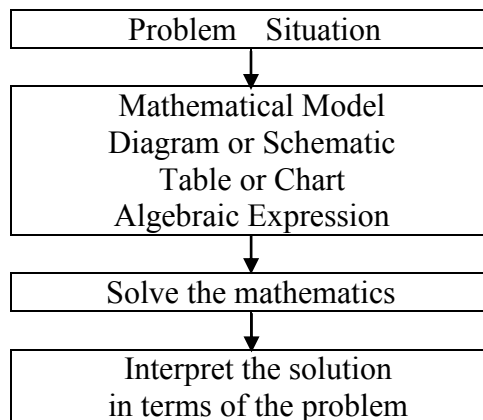
THE BIG IDEAS

ONE Problem Solving

One big idea in mathematics is using mathematics to solve problems. There are many ways of approaching and making sense of a problem, developing a strategy for solving the problem, carrying out the solution process, and checking or reflecting on the answer.

Units of measure are very important in expressing the answer to a problem.

We will look at several non-routine problems. The four-step problem-solving process will be applied throughout the course.



TWO Functions and Graphs

A second big idea is function. A function can be represented as a table, an algebraic expression, or a graph. We will look at several particular examples of functions in the discipline where they arise. For example, finding simple interest. The formula $I=Prt$ indicates that interest is a function of the principal, interest rate, and time.

THREE Geometry and Patterns

Geometry is not restricted to the postulate that two parallel lines never meet. Non-Euclidean geometry includes geometry on a sphere where there are no parallel lines. Fractals, iterative process, self-similarity and similarity dimension are all part of our daily life.

FOUR Mathematics of Graphs

You may be familiar with the graph of a line or a bar graph. There are other types of graphs that can be used to determine how to construct efficient computer networks, design routes to remove snow from city streets, and deliver mail in an optimal way.

FIVE Mathematics of Finance

Financial calculations are part of an almost daily experience. We see discounts on merchandise, sales tax added to a purchase, interest charged on a credit card, and car payments are just some of the instances where a knowledge of how these calculations are performed provide us with the ability to be informed consumers.

SIX Probability and Counting

These principles can be seen everywhere we go in our daily lives. What are the chances of rain today? What are the chances you will win a lottery if you buy five tickets and 45,000 are sold? How many different ways can we seat thirty people in forty-five chairs?

SEVEN Statistics

Statistics permeates everyday life in ways we do not realize. Every day statistics is in out newspapers and magazines. We use statistics without consciously thinking about how and why. The big areas in statistics are: Gathering data, describing and picturing data, probability, and making decisions using data. We will look at a small piece of each of these ideas in order to understand the concepts.

TEXT

Aufmann, Richard, Joanne Lockwood, Richard Nation, Dan Clegg. Mathematical Excursions, Second Edition. Boston: Houghton Mifflin, 2007.

GRADES

- 300 points Four 75 point quizzes to be given **in class** at the beginning of the second, third, fourth and fifth sessions.
- 300 points Six classroom assignment sets
- 150 points Final Exam to be given at the end of the sixth session.
- 750 points Total points

Suggested letter grade assignments

The letter grade can be based on the total number of points earned out of the 750 points available.

| | | | | | |
|-----------|--------|----|-----------|-----------|---------|
| 95-100% A | 88-90% | B+ | 77-79% C+ | 67-69% D+ | 0-59% F |
| 91-94% A- | 84-87% | B | 74-76% C | 65-66% D | |
| | 80-83% | B- | 70-73% C- | 60-64% D- | |

PREREQUISITES

This course assumes that you have completed two years of college preparatory algebra and one year of college preparatory geometry in high school or the equivalent. AL 122 Algebra is a brief overview of the algebra concepts taught at the high school level.

Specifically, it would be helpful if you know how to graph points on a Cartesian coordinate system, graph lines and other functions, to evaluate functions and expressions involving variables and to solve linear and quadratic equations. These topics will be reviewed during the semester.

You may want to secure an algebra textbook from a local library or high school to use in addition to the textbook for this course.

OVERVIEW OF THE SESSIONS

SESSION ONE

Problem solving, graphing in two-dimensions, graphs for linear functions.

SESSION TWO

Graphing quadratic and exponential functions. Non-Euclidean geometry, fractals, and self-similarity.

SESSION THREE

Graphs, Euler circuits and walks, Hamiltonian circuits, weighted graphs, efficient routes, planarity and Euler's formula, map coloring.

SESSION FOUR

Functions used in finance, simple interest, compound interest, loans, amortized loans, buying a house.

SESSION FIVE

Introduction of counting principle, permutations and combinations, and probability. Measures of central tendency, measures of dispersion.

SESSION SIX

Measures of relative position, normal distribution and linear regression.

COURSE OBJECTIVES

1. Recall basic ideas problem solving.
2. Recall and expand ideas of functions and graphing.
3. Understand the concepts of circuits and paths.
4. Understand the concepts of non-Euclidean geometry, fractals, iterative process and self-similarity.
5. Develop an understanding of investing and borrowing money:
6. Understand the basic concepts of probability and counting principles.
7. Understand measures of central tendency, dispersion, relative position for sets of data, regression and correlation.
8. Understand the Normal Probability Distribution.

SESSION ONE

OBJECTIVES FOR SESSION 1

1. Recall and expand ideas of functions and graphing.
 - a. Understand the rectangular coordinate system and how to plot points.
 - b. Understand the concept of a function.
 - c. Understand how to represent a function algebraically, using a table and using a graph.
 - d. Understand linear functions.

ASSIGNMENTS FOR SESSION 1

Work through Appendix B of this student module with your calculator.

Do pages 1-3, pages 6-7 Section 7. Perform the keystrokes as they are presented in the appendix. This will help you become familiar with the graphing calculator.

Read Chapter 1 Section 1.1 Inductive and Deductive Reasoning

Do page 12 #1, 3, 5, 13, 15, 25, 27

Read Chapter 1 Section 1.2 Problem Solving with Patterns

Do page 23 #1, 3, 7, 9, 11, 17, 19

Read Chapter 1 Section 1.3 Problem-Solving Strategies

Do page 41 #1, 3, 15, 17, 19, 27, 29

Read Chapter 6 Section 6.1 Rectangular Coordinates and Functions

Do page 339 #1-53 every other odd (1, 5, 9, etc.). Skip problem 37.

** Note: The answer to problem 13 in the back is correct, if the problem is rewritten as
13. Graph the ordered-pair solutions of $y = x^3 - 2$ when $x = -1, 0, 1, \text{ and } 2$.

Read Chapter 6 Section 6.2 Properties of Linear Functions

Do page 350 #1-45 every other odd

SESSION 1 ACTIVITIES

- I. Answer questions from Assignment for Session 1.
- II. Introduce material for Session 2

SESSION TWO

OBJECTIVES FOR SESSION 2

1. Understand nonlinear graphing through quadratic and exponential functions.
2. Understand the difference between Euclidean Geometry and Non-Euclidean Geometry.
3. Understand the difference between Euclidean geometry, Lobachevskian geometry and Riemannian geometry.
4. Understand what a fractal is.
5. Understand how to construct a fractal given the initiator and generator of the fractal.
6. Understand self-similarity.

SESSION 2 ASSIGNMENTS

Read Chapter 6 Section 6.4 Quadratic Functions

Do page 372 #1-45 every other odd

Read Chapter 6 pages 374-376 – This will help you understand finding “zeroes” of a graph using your calculator

Do page 376 #53-59 odd

** Note: The answers are not in the “back” of the book for these problems. The answers are: #53 -1, 5 ; #55 -0.32, 0.59 ; #57 -1.77, 1.06 ; #59 $x = -4, -1, 3$

Read Chapter 6 Section 6.5 Exponential Functions and Their Applications pages 377-383

Do page 386 #1-27 every other odd

Read Chapter 8 Section 8.6 Non-Euclidean Geometry
Do page 544 #1-13 odds

Read Chapter 8 Section 8.7 Fractals Pages 546-553
Do page 558 #1-9 odds

SESSION 2 ACTIVITIES

- I. Answer Questions from Assignment for Session 2.
- II. Quiz #1
- III. Introduce material for Session 3.

SESSION THREE

OBJECTIVES FOR SESSION 3

1. Find Euler and Hamiltonian circuits.
2. Apply graph theory to various problems.
3. Use Euler's formula
4. Use graph theory to color a map.

ASSIGNMENTS FOR SESSION 3

Read Chapter 9 Section 9.1 Traveling Roads and Visiting Cities
Do page 583 #1-39 odd

Read Chapter 9 Section 9.2 Efficient Routes
Do page 601 #1-23 odd

Read Chapter 9 Section 9.3 Planarity and Euler's Formula
Do page 615 #1-7 odd, 13, 17-23 odd

Read Chapter 9 Section 9.4 Map Coloring and Graphs
Do page 628 #1-25 odd

SECTION 3 ACTIVITIES

1. Answer questions on Session 3 Assignments.
2. Quiz #2
3. Introduce new material.

SESSION FOUR

OBJECTIVES FOR SESSION 4

1. Compute simple and compound interest
2. Compute future value and present value of compound interest.
3. Compute credit card, mortgage and car loan payments

ASSIGNMENTS FOR SESSION 4

Read Chapter 10 Section 10.1 Simple Interest

Do page 651 #5-49 every other odd

Read Chapter 10 Section 10.2 Compound Interest

The calculator has built in functions to solve compound interest problems.

Example: \$10000 is deposited in an account earning 8% compounded daily.

How much is in the account at the end of 30 years?

Solution:

On the TI-83

2nd **FINANCE** **1**:TVM Solver... To get the FINANCE CALC menu and TVM Solver

On the TI-83 Plus

APPS **1**:Finance **1**:TVM Solver... To get the FINANCE CALC menu and TVM Solver

Now continue:

365 **×** **30** **ENTER**

To set $N=365 \times 30$, the number of payment periods

8 **ENTER**

To set $I\%=8$, the yearly interest rate

(-) **10000** **ENTER**

To set $PV=-10000$, as a cash outflow which is the present value deposited.

0 **ENTER**

To set $PMT=0$ since there is no payment each period

ENTER

Do not set FV since we are looking for the future value

365 **ENTER**

To set $P/Y=365$, the number of payments per year.

365 **ENTER**

To set $C/Y=365$, the number of compounding periods per year

ENTER

So the calculation of interest will be done at the end of the compounding period.

up arrow **up arrow** **up arrow**

To place the cursor on FV and solve for the future value.

ALPHA **SOLVE**

ANSWER: There will be \$110202.78 in the account after 30 years.

-----END OF CALCULATOR EXAMPLE-----

***** Do page 669 #1-89 every other odd. Use your calculator.

OTHER CALCULATOR FUNCTIONS. These are described below.

1. MAKING A TABLE

Example: Make a table for the balance at the end of each month for \$1500 deposited in an account earning 3.45% compounded monthly.

Y= 1000 (1 + .0345)
12) ^ X,T,θ,n

Store the equation in the Y= list.

2nd QUIT

Return to the Home Screen

2nd TBLSET

Get the table set menu.

0 ENTER

Set the beginning number.

1 ENTER

Set the increment between numbers.

ENTER

Set AUTO so the calculator will provide the values of x the number of payment periods.

ENTER

Set AUTO so the calculator will provide the values of $Y1$ the amount in the account.

2nd TABLE

Get the table.

We see that there is \$1002.09 in the account after 1 month, \$1005.80 after 2 months, etc.

2. CONTINUOUS COMPOUNDING (See page 655 #94)

Use the continuously compounding formula $A = Pe^{rt}$ where

A = future value, P = principal, e is approximately 2.72, r = interest rate, t = time in years.

NOTE: e is on the calculator above the LN key.

Example: \$100 is invested for 5 years at 5% compounded continuously.

Calculate $100e^{(.05)(5)}$ To do this use: 100 2nd e^x ((.05) (5)) ENTER

OPTIONAL

The calculator has a built-in function to find the effective annual rate.

Example: Find the effective annual rate equivalent to a rate of 8% compounded every two months.

Solution:

2nd FINANCE

Get the finance menu.

Arrow down to C: >Eff(

Arrow down to the effective rate conversion.

ENTER

8 , 6)

Enter the annual rate and the number of compounding periods in a year.

ENTER

The effective rate is 8.27% rounded to two decimal places.

3. MORTGAGES/LOANS

The calculator has built-in functions to calculate the payments.

Example: Find the monthly payment on a five-year loan of \$10,000 at 10% interest.

Solution:

2nd **FINANCE**

Get the finance menu.

1 **:** **TVM Solver**

Get the solver menu.

12 **×** **5** **ENTER**

Enter the number of payments.

10 **ENTER**

Enter the interest rate.

10000 **ENTER**

Enter the present value (the value of the loan)

ENTER

We will calculate the payment.

0 **ENTER**

The future value will be 0.

12 **ENTER**

The number of payments per year is 12.

12 **ENTER**

This is monthly (12 times per year)

compounding.

ENTER

Payments are at the end of the month.

up arrow **up arrow**

Arrow up to PMT and solve.

up arrow **up arrow**

ALPHA **SOLVE**

The payments are \$212.47 per month.

4. FUTURE VALUE.

Example: Find the future value of a savings plan where you deposit \$50 at the beginning of every month for 25 years into an account earning 6% annually compounded monthly.

Solution:

2nd **FINANCE**

Get the finance menu.

1 **:** **TVM Solver**

Get the solver menu.

12 **×** **25** **ENTER**

Enter the number of payments.

6 **ENTER**

Enter the interest rate.

0 **ENTER**

The present value is 0.

(-) **50** **ENTER**

The payment is \$50.

ENTER

We will solve for the future value.

12 **ENTER**

12 payments per year.

12 **ENTER**

Compounded monthly.

ENTER

Calculate interest at the end of the period.

up arrow **up arrow**

Arrow up to FV and solve.

up arrow **up arrow**

ALPHA **SOLVE**

You will have \$34,649.70 saved after 25 years.

Read Chapter 10 Section 10.3 Credit Cards and Consumer Loans

Do page 686 #1, 9, 17-35 every other odd

Read Chapter 10 Section 10.5 Home Ownership

Do page 711 #1-33 odds

SESSION 4 ACTIVITIES

1. Review Session 4 homework.
2. Quiz #3
3. Introduction of Session 5 material.

SESSION FIVE

OBJECTIVES FOR SESSION 5

1. Understand the counting principle, permutations and combinations.
2. Understand the concepts of probability and conditional probability.
3. Compute measures of central tendency: mean, median, and mode.
4. Compute measures of dispersion or spread: range, variance, and standard deviation.

ASSIGNMENTS FOR SESSION 5

Read Chapter 11 Section 11.1 Counting Principle
Do page 728 #1-25 odds

Read Chapter 11 Section 11.2 Permutations and Combinations
Do page 740 #1-77 every other odd

Read Chapter 11 Section 11.3 Probability and Odds pages 743-749
Do page 753 #1-65 every other odd

NOTE: The calculator can calculate the mean, median, standard deviation very quickly after entering the data in a list. See Appendix B page 24. Do the examples in Section 18 for One-Variable Statistics.

Read Chapter 12 Section 12.1 Measures of Central Tendency
Do page 803 #1-33 every other odd

Read Chapter 12 Section 12.2 Measures of Dispersion
Do page 815 #1-21 every other odd

SESSION 5 ACTIVITIES

1. Answer questions on the homework.
2. Quiz #4
3. Introduction of Session 6 material.

SESSION SIX

OBJECTIVES FOR SESSION 6

1. Calculate z scores, percentiles and quartiles.
2. Draw and interpret frequency distributions and histograms.
3. Use the Empirical rule for normal distributions.
4. Understand and calculate linear regression line and correlation coefficient for two-variable data.

ASSIGNMENTS FOR SESSION 6

Read Chapter 12 Section 12.3 Measures of Relative Position
Do page 828 #1-21 every other odd

Read Chapter 12 Section 12.4 Normal Distribution and Histograms
Do page 844 #1-53 every other odd

Read Chapter 12 Section 12.5 Linear Regression and Correlation
Do page 857 #1, 13-21 odd.

ACTIVITIES FOR SESSION 6

- I. Answer questions on Session 6 homework.
- II. Answer questions on other material for this class.
- III. FINAL EXAM (at least 2 hours time allotted)

APPENDICES

Appendix A Homework Check Sheets
 Graph paper
 Worksheets

Appendix B Texas Instruments^R TI-83 Calculator Instructions

APPENDIX A

Homework Check sheets

Graph Paper

Worksheets

Name _____ Date _____

ASSIGNMENT CHECKLIST FOR SESSION 1 - AL 125 Mathematics

Make a copy of your homework for reference. Turn in the originals.

Page Problems Place a 1, 2, or 3 in each blank indicating:
1 – I tried the problem, did not get an answer.
2 – I tried the problem, got an answer, but I still do not understand
3 – I solved the problem and I understand well.

p 12-13 _____ 1, _____ 3, _____ 5, _____ 13, _____ 15, _____ 25, _____ 27

p 24-25 _____ 1, _____ 3, _____ 7, _____ 9, _____ 11, _____ 17, _____ 19

p 41-43 _____ 1, _____ 3, _____ 15, _____ 17, _____ 19, _____ 27, _____ 29

p 338-339 _____ 1, _____ 5, _____ 9, _____ 13, _____ 17, _____ 21, _____ 25,
_____ 29, _____ 33, _____ 41, _____ 45, _____ 49, _____ 53

p 350-351 _____ 1, _____ 5, _____ 9, _____ 13, _____ 17, _____ 21, _____ 25,
_____ 29, _____ 33, _____ 37, _____ 41, _____ 45

46 questions

Approximate number of hours spent on homework and study this week _____

COMMENTS:

[This page left blank intentionally.]

Name _____ Date _____

ASSIGNMENT CHECKLIST FOR SESSION 2 - AL 125 Mathematics

Make a copy of your homework for reference. Turn in the originals.

Page Problems Place a 1, 2, or 3 in each blank indicating:
1 – I tried the problem, did not get an answer.
2 – I tried the problem, got an answer, but I still do not understand
3 – I solved the problem and I understand well.

p 372-373 _____ 1, _____ 5, _____ 9, _____ 13, _____ 17, _____ 21, _____ 25,
_____ 29, _____ 33, _____ 37, _____ 41, _____ 45

p 376 _____ 53, _____ 55, _____ 57, _____ 59

p 386-387 _____ 1, _____ 5, _____ 9, _____ 13, _____ 17, _____ 21, _____ 25

p 544-545 _____ 1, _____ 3, _____ 5, _____ 7, _____ 9, _____ 11, _____ 13

p 558-559 _____ 1, _____ 3, _____ 5, _____ 7, _____ 9

35 Questions

Approximate number of hours spent on homework and study this week _____

COMMENTS:

[This page left blank intentionally.]

Name _____ Date _____

ASSIGNMENT CHECKLIST FOR SESSION 3 - AL 125 Mathematics

Make a copy of your homework for reference. Turn in the originals.

Page Problems Place a 1, 2, or 3 in each blank indicating:
1 – I tried the problem, did not get an answer.
2 – I tried the problem, got an answer, but I still do not understand
3 – I solved the problem and I understand well.

p 583-587 _____ 1, _____ 3, _____ 5, _____ 7, _____ 9, _____ 11, _____ 13,
_____ 15, _____ 17, _____ 19, _____ 21, _____ 23, _____ 25, _____ 27,
_____ 29, _____ 31, _____ 33, _____ 35, _____ 37, _____ 39

p 601-605 _____ 1, _____ 3, _____ 5, _____ 7, _____ 9, _____ 11, _____ 13,
_____ 15, _____ 17, _____ 19, _____ 21, _____ 23

p 615-617 _____ 1, _____ 3, _____ 5, _____ 7, _____ 13, _____ 17, _____ 19,
_____ 21, _____ 23

p 628-631 _____ 1, _____ 3, _____ 5, _____ 7, _____ 9, _____ 11, _____ 13,
_____ 15, _____ 17, _____ 19, _____ 21, _____ 23, _____ 25

53 Questions

Approximate number of hours spent on homework and study this week _____

COMMENTS:

[This page left blank intentionally.]

Name _____ Date _____

ASSIGNMENT CHECKLIST FOR SESSION 4 - AL 125 Mathematics

Make a copy of your homework for reference. Turn in the originals.

Page Problems Place a 1, 2, or 3 in each blank indicating:
1 – I tried the problem, did not get an answer.
2 – I tried the problem, got an answer, but I still do not understand
3 – I solved the problem and I understand well.

p 651-652 _____ 5, _____ 9, _____ 13, _____ 17, _____ 21, _____ 25, _____ 29,
_____ 33, _____ 37, _____ 41, _____ 45, _____ 49

p 669-672 _____ 1, _____ 5, _____ 9, _____ 13, _____ 17, _____ 21, _____ 25,
_____ 29, _____ 33, _____ 37, _____ 41, _____ 45, _____ 49, _____ 53,
_____ 57, _____ 61, _____ 65, _____ 69, _____ 73, _____ 77, _____ 81,
_____ 85, _____ 89

p 686-689 _____ 1, _____ 9, _____ 17, _____ 21, _____ 25, _____ 29, _____ 33

p 711-712 _____ 1, _____ 3, _____ 5, _____ 7, _____ 9, _____ 11, _____ 13,
_____ 15, _____ 17, _____ 19, _____ 21, _____ 23, _____ 25, _____ 27,
_____ 29, _____ 31, _____ 33

59 Questions

Approximate number of hours spent on homework and study this week _____

COMMENTS:

[This page left blank intentionally.]

Name _____ Date _____

ASSIGNMENT CHECKLIST FOR SESSION 5 - AL 125 Mathematics

Make a copy of your homework for reference. Turn in the originals.

Page Problems Place a 1, 2, or 3 in each blank indicating:
1 – I tried the problem, did not get an answer.
2 – I tried the problem, got an answer, but I still do not understand
3 – I solved the problem and I understand well.

p 728 _____ 1, _____ 3, _____ 5, _____ 7, _____ 9, _____ 11, _____ 13,
_____ 15, _____ 17, _____ 19, _____ 21, _____ 23, _____ 25

p 740-742 _____ 1, _____ 5, _____ 9, _____ 13, _____ 17, _____ 21, _____ 25,
_____ 29, _____ 33, _____ 37, _____ 41, _____ 45, _____ 49, _____ 53,
_____ 57, _____ 61, _____ 65, _____ 69, _____ 73, _____ 77

p 753-755 _____ 1, _____ 5, _____ 9, _____ 13, _____ 17, _____ 21, _____ 25,
_____ 29, _____ 33, _____ 37, _____ 41, _____ 45, _____ 49, _____ 53,
_____ 57, _____ 61, _____ 65

p 803-806 _____ 1, _____ 5, _____ 9, _____ 13, _____ 17, _____ 21, _____ 25,
_____ 29, _____ 33

p 815-818 _____ 1, _____ 5, _____ 9, _____ 13, _____ 17, _____ 21

65 questions

Approximate number of hours spent on homework and study this week _____

COMMENTS:

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Name _____ Date _____

ASSIGNMENT CHECKLIST FOR SESSION 6 - AL 125 Mathematics

Make a copy of your homework for reference. Turn in the originals.

Page Problems Place a 1, 2, or 3 in each blank indicating:
1 – I tried the problem, did not get an answer.
2 – I tried the problem, got an answer, but I still do not understand
3 – I solved the problem and I understand well.

p 828-830 _____ 1, _____ 5, _____ 9, _____ 13, _____ 17, _____ 21

p 844-846 _____ 1, _____ 5, _____ 9, _____ 13, _____ 17, _____ 21, _____ 25,
_____ 29, _____ 33, _____ 37, _____ 41, _____ 45, _____ 49, _____ 53

p 857-861 _____ 1, _____ 13, _____ 15, _____ 17, _____ 19, _____ 21

26 Questions

Approximate number of hours spent on homework and study this week _____

COMMENTS:

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Formulas Everyone Should Know

| | | | |
|----------------------|-----------------------|-----------------------------|--|
| Area: | Rectangle | $A = L \cdot W$ | $L = \text{length}, W = \text{width}$ |
| | Triangle | $A = \frac{1}{2} b \cdot h$ | $b = \text{base}, h = \text{height}$ |
| | Circle | $A = \pi r^2$ | $r = \text{radius}$ |
| Perimeter: | Rectangle | $P = 2L + 2W$ | $L = \text{length}, W = \text{width}$ |
| | Circle(circumference) | $C = 2\pi r$ or $C = \pi d$ | $r = \text{radius}, d = \text{diameter}$ |
| Volume of a | | | |
| Regular prism: | | $V = L \cdot W \cdot H$ | $L = \text{length}, W = \text{width},$ $H = \text{height}$ |
| Distance: | | $d = r \cdot t$ | $d = \text{distance}, r = \text{rate}, t = \text{time}$ |
| Interest: | | $I = p \cdot r \cdot t$ | $I = \text{Interest}, p = \text{principal},$ $R = \text{rate}, t = \text{time}(\text{years})$ |
| Pythagorean Theorem: | | $c^2 = a^2 + b^2$ | $c = \text{hypotenuse}, a \ \& \ b = \text{sides}$ |

Conversions Everyone Should Know

| | | |
|----------------------------|--|--------------------|
| <u>Length Measurements</u> | <u>Time Measurements</u> | |
| 1 foot = 12 inches | 1 minute = 60 seconds | 1 year = 12 months |
| 1 yard = 36 inches | 1 hour = 60 minutes | 1 year = 365 days |
| 1 yard = 3 feet | 1 day = 24 hours | 1 year = 52 weeks |
| 1 mile = 5280 feet | 1 week = 7 days | |
| <u>Weight Measurements</u> | <u>Other Measurements</u> | |
| 1 pound = 16 ounces | 1 square yard = 9 square feet | |
| 1 ton = 2000 pounds | 1 square foot = 144 square inches | |
| | 1 cubic foot = 1728 cubic inches | |
| | 1 tablespoon = 3 teaspoons | |
| | 1 quart = 4 cups | |
| | 1 cup = 8 fluid ounces | |
| <u>Metric Conversions:</u> | 1 meter = 100 centimeters = 1000 millimeters | |
| | 1 inch = 2.54 centimeters | |

Some Other Things You Should Know

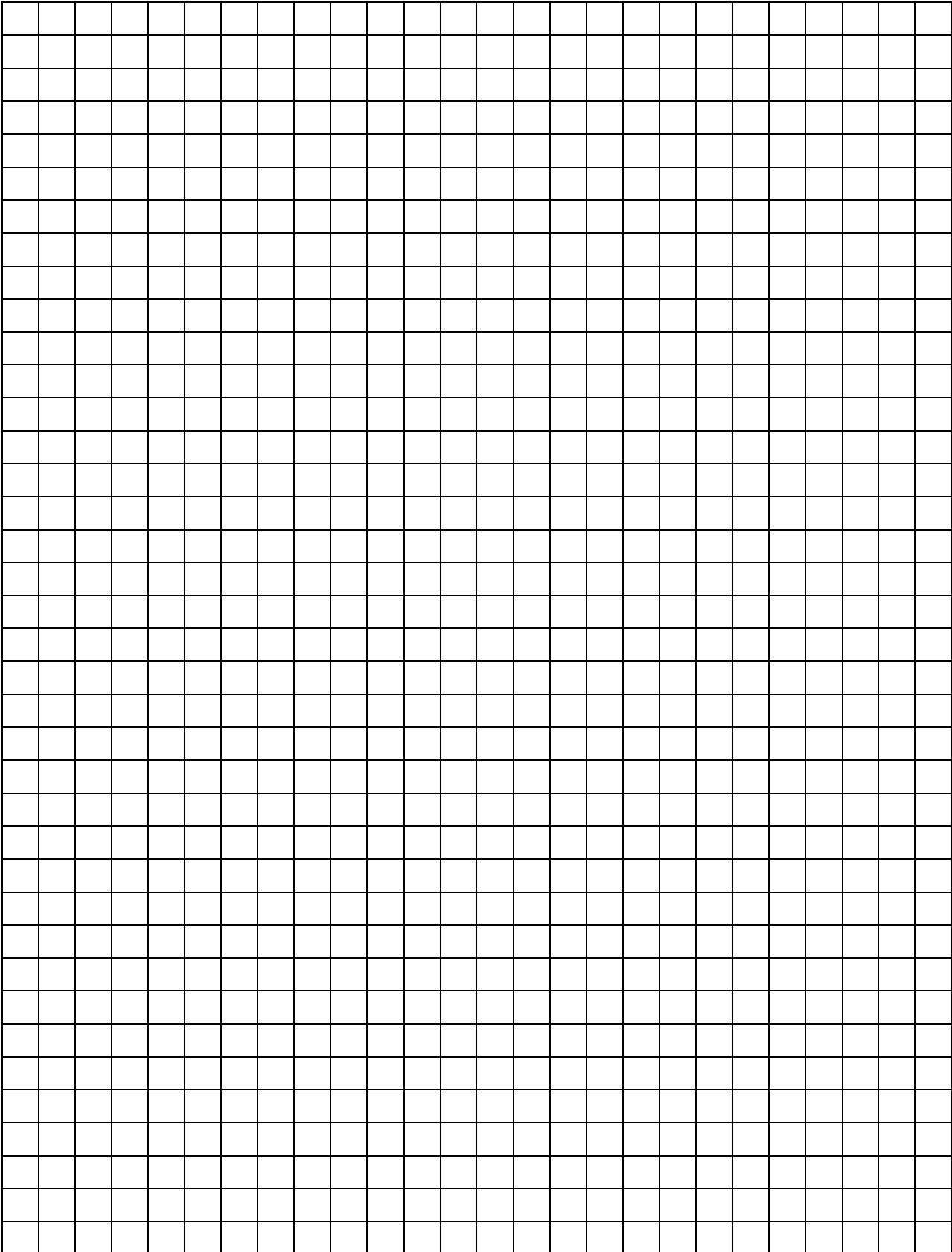
Slope = rise/run = $(y_2 - y_1)/(x_2 - x_1)$
 Probability = (number of successes)/(number of possible)
 Mean = same as the average

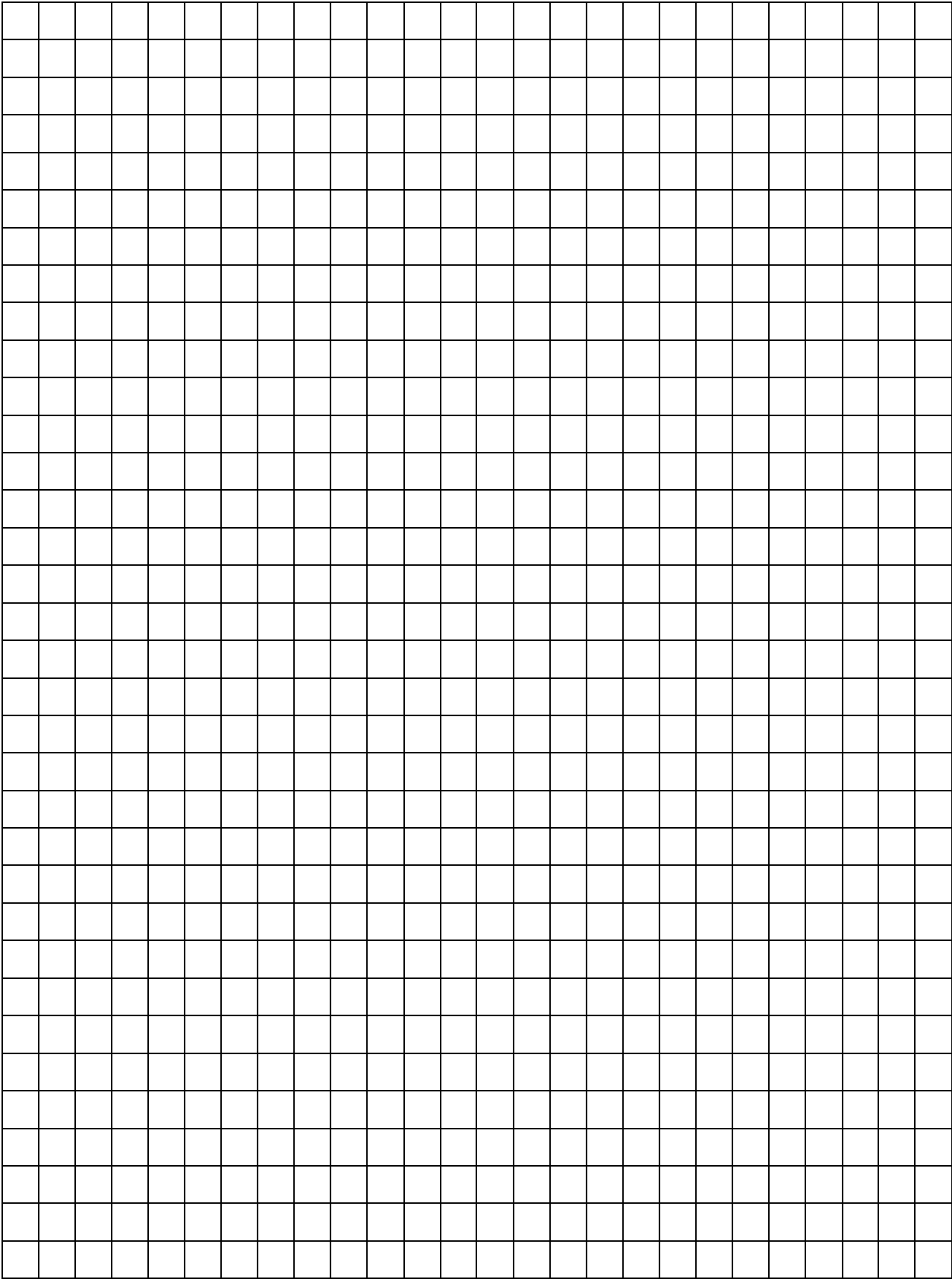
Percent: $\frac{\text{Part}}{\text{Whole}} = \frac{\text{Result}}{100\%}$

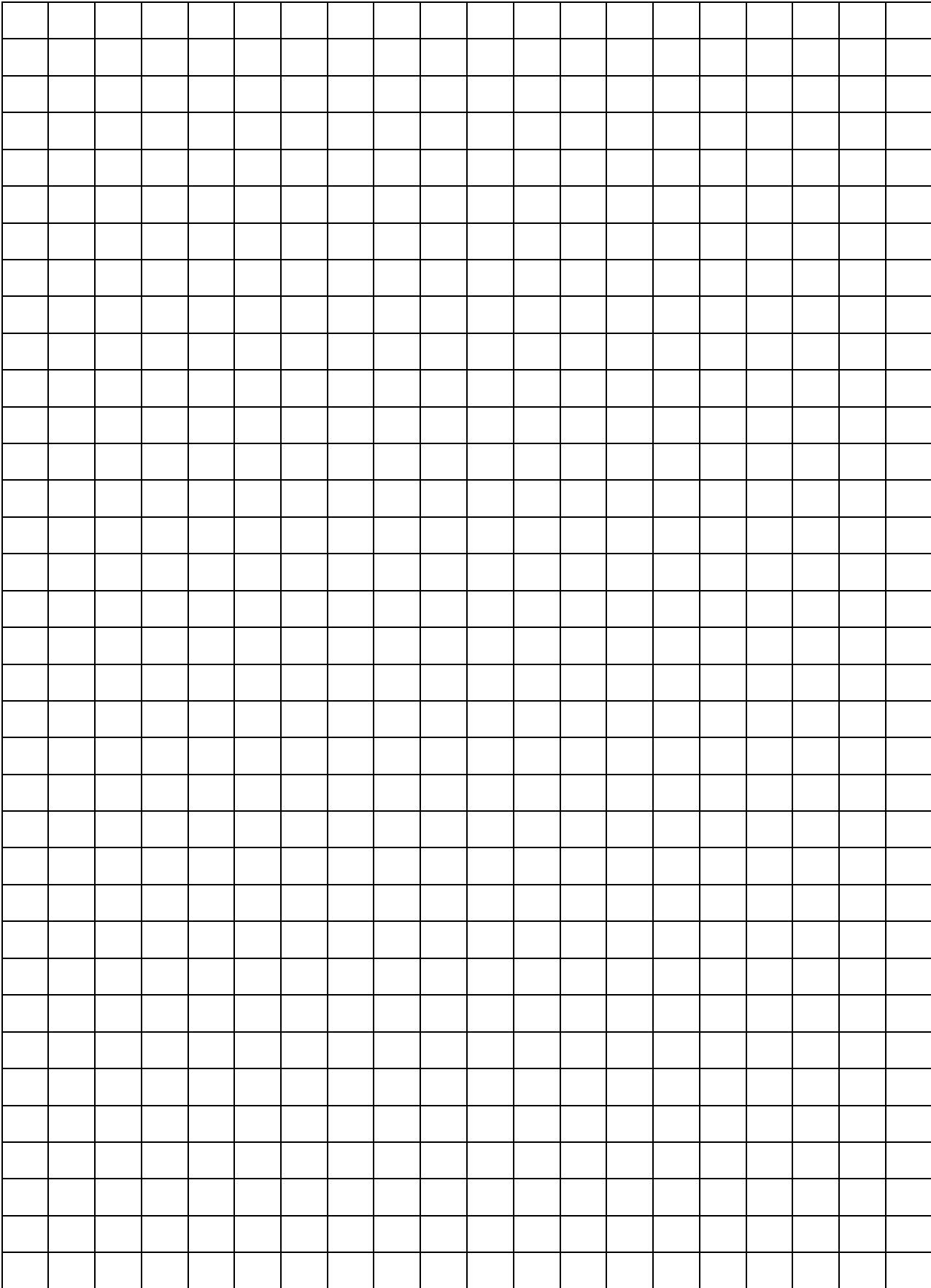
Euclidean Geometry facts:

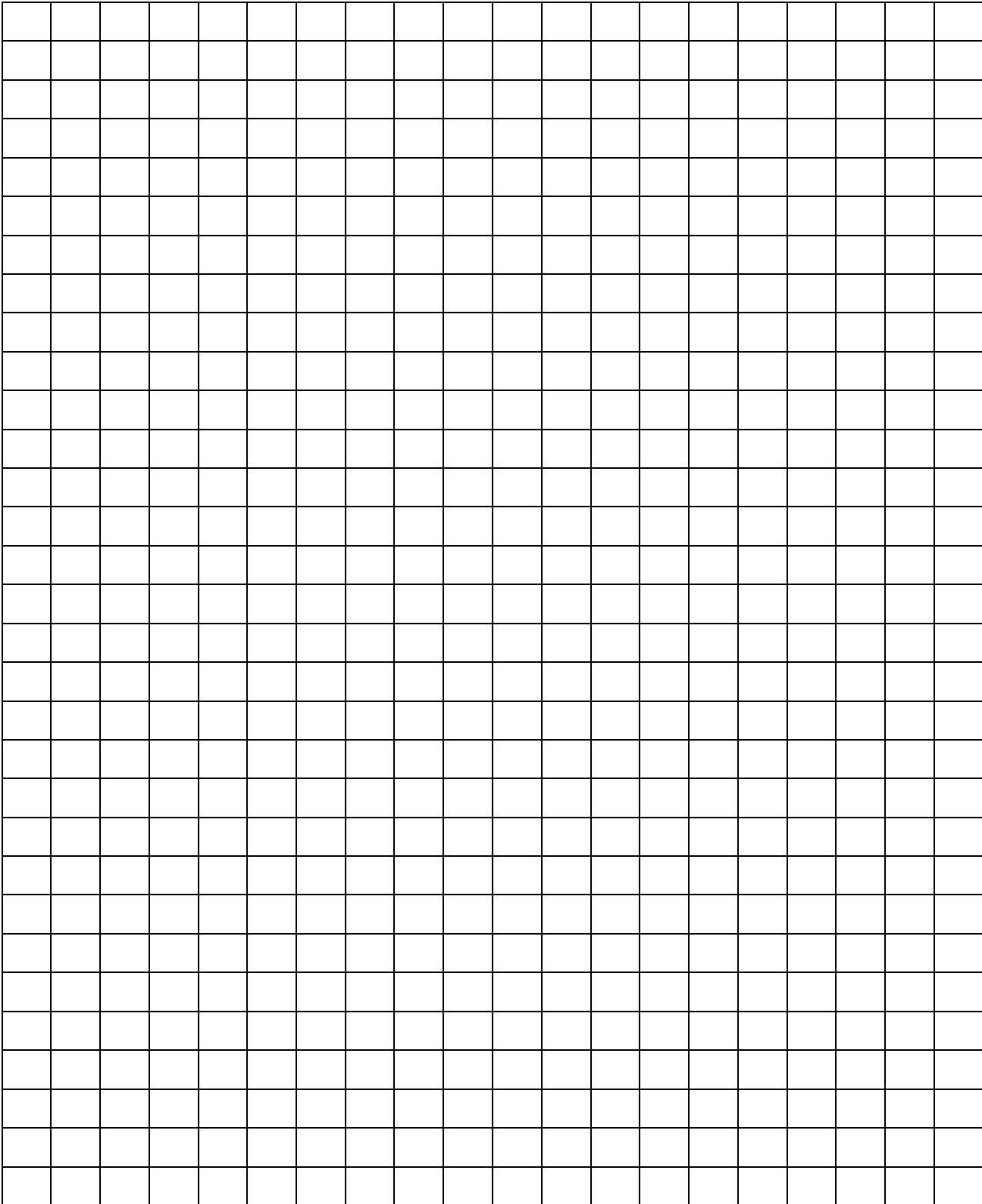
There are 360° in a circle
 Diameter = $2 \cdot \text{radius}$

Right Angle = 90°
 Straight angle = 180°









APPENDIX B

Texas Instruments^R TI-83 Calculator Instructions

written by C. L. Meitler