



*School of Access
Academic and Career Foundations Department*

MATH 038 Fundamental Math for Trades

COURSE OUTLINE

The Approved Course Description is available on the College website http://camosun.ca/learn/programs/academic-upgrading/what-youll-learn/upgrading.html#tabs-fundamental_a

1. Instructor Information

Instructor: Alison Bowe
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2. Intended Learning Outcomes

(complete ABE Intermediate Mathematics learning outcomes at ABE Articulation Handbook website http://www2.gov.bc.ca/assets/gov/education/post-secondary-education/adult-education/2016-17_abe_guide.pdf)

At the end of the course, students will be able to:

1. demonstrate knowledge and skills in using the principles and operations of various math topics such as arithmetic, measurement, graphs, formulas, and geometry
2. apply a variety of strategies in solving math-related problems
3. apply knowledge and skills in various math topics to solve problems related to particular Trades Foundation Programs (except Professional Cook and Electrical programs)
4. use knowledge of various math topics as a basis for further study in Trades Foundation Programs (entry level)

3. Required Materials

- textbook: *Line B, Solve Mathematical Problems, Trades Common Core*
- scientific calculator
- optional supplementary materials from MATH 023–026

4. Course Instructions and Content

The course completion time will vary for each student, depending on a number of factors, including your current level of math skills, motivation, learning rate, and how much time you have to work on this course. Students generally need to spend 5–15 hours of study time per week, either at the college or at home, to complete a math course within 4 months.

The table below lists the eleven competencies or chapters in the Line B text that are required for each Trades Foundation Program (except Professional Cook and Electrical). Follow these steps to complete each competency:

- skip the Pre-Test
- study the explanations and examples
- answer and check ALL questions in the order listed in the table below
- ask the instructor for help whenever you need it

To prepare for the Final Test, write the Practice Test and review your results with the instructor.

| MATH 038 course content | | |
|--|----------------------|-------------------|
| <i>Unit R - Arithmetic Review (no calculator) [This is a Separate Booklet]</i> | | |
| Place value | R.1 | |
| Comparing numbers | R.2 | |
| Rounding numbers | R.3 | |
| Adding and subtracting whole numbers and decimals | R.4 | |
| Multiplying whole numbers and decimals | R.5 | |
| Powers - repeated multiplication | R.6 | |
| Dividing whole numbers and decimals | R.7 | |
| Order of operations | R.8 | |
| Operations with fractions | R.9 | |
| Equivalent fractions | R.10 | |
| Adding and subtracting fractions | R.11 | |
| Multiplying fractions | R.12 | |
| Dividing fractions | R.13 | |
| Converting fractions and decimals | R.14 | |
| Estimation | R.15 | |
| Practice Test | | |
| Unit R final test (no calculator) | | |
| MATH 038 course content | Line B page # | question # |
| <i>Competency B-1 – Whole Numbers</i> | | |
| | 5 | 1-4 |
| | 3 | 1-5 |
| | 7 | 1-5 |
| <i>Competency B-2 – Fractions</i> | | |
| | 15 | 1-4 |
| | 17 | 1-4 |
| | 20 | 1-4 |
| | 21 | 1-5 |
| | 11 | 1-20 |
| | 23 | 1-15 |
| <i>Competency B-3 – Decimals</i> | | |
| | 32 | 1-2 |
| | 33 | 1-2 |
| | 37 | 1-5 |
| | 29 | 1-10 |
| | 38 | 1-15 |
| MATH 038 course content | Line B page # | question # |

| | | |
|--|-----|------|
| <i>Competency B-4 – Metric and Imperial Measurements</i> | | |
| | 46 | 1-2 |
| | 49 | 1-6 |
| | 43 | 1-2 |
| | 50 | 1-2 |
| <i>Competency B-5 – Ratio and Proportion</i> | | |
| | 59 | 1-12 |
| | 55 | 1-10 |
| | 62 | 1-10 |
| <i>Competency B-6 – Percent</i> | | |
| | 69 | 1-4 |
| | 73 | 1-4 |
| | 67 | 1-5 |
| | 74 | 1-5 |
| <i>Competency B-7 – Powers and Roots</i> | | |
| | 82 | 1 |
| | 84 | 1 |
| | 79 | 1-3 |
| | 85 | 1-3 |
| <i>Competency B-8 – Graphs</i> | | |
| | 93 | 1-5 |
| | 96 | 1-2 |
| | 89 | 1-5 |
| | 98 | A-E |
| <i>Competency B-9 – Formulas</i> | | |
| | 111 | 1-5 |
| | 105 | 1-7 |
| | 115 | 1-5 |
| <i>Competency B-10 – Perimeters, Areas, and Volumes</i> | | |
| | 125 | 1-8 |
| | 121 | 1-8 |
| | 129 | 1-8 |
| <i>Competency B-11 – Angles and Triangles</i> | | |
| | 142 | 1-4 |
| | 135 | 1-6 |
| | 151 | 1-6 |
| MATH 038 Practice Test | | |
| MATH 038 Final Test | | |

5. Basis of Student Assessment (Weighting)

The course grade is either COM (complete) or IP (in progress) or NC (not complete), and is based on the student's score on the Final Test, which covers all of the required units (passing score 75%).

Note:

Students with a record of poor attendance OR poor progress may be restricted from re-registering in Academic and Career Foundations Department courses.

6. Grading System

COM complete IP in progress NC not complete

7. Learning Support and Services for Students

ACADEMIC UPGRADING HELP CENTRE (CBA 109 or Ewing 342)

<http://camosun.ca/services/help-centres/math.html>

Help with coursework, reference & learning materials library,
computers & printer, quiet testing & study areas

There are many other Camosun services available to help you succeed in and out of the classroom, including education planning, learning and personal support, campus life, work and housing, and getting around. This information is available at Registration or the College web site <http://camosun.ca/services/>

8. College Policies

ACADEMIC PROGRESS

The purpose of this policy is to enhance a learner's likelihood of success, and to encourage the learner to use College resources effectively.

<http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.1.pdf>

GRADING

The purpose of this policy is to ensure that grading and promotion are consistent and fair. <http://camosun.ca/learn/calendar/current/procedures.html>

STUDENT CONDUCT

The purpose of this policy is to provide clear expectations of appropriate academic and non-academic student conduct, and to establish processes for resolution of conduct issues or the imposition of sanctions for inappropriate conduct.

<http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.5.pdf>

9. MATH 038 Essential Skills (based on learning outcomes, coursework and classroom interaction)

Numeracy:

numerical calculation and measurement (arithmetic, metric and imperial measurement, graphs, formulas, geometry)

- Convert between fractions, decimals, and percent
- Add, subtract, multiply and divide rational numbers
- Solve application problems involving arithmetic, metric and imperial measurement, graphs, formulas, and geometry
- Use order of operations
- Use the common metric and imperial units for temperature, length, volume and mass
- Convert between and within metric and imperial units using tables and/or calculators
- Use formulas to solve related application problems
- Read, write, and use ratios and proportions to solve percent and other application problems
- Distinguish between significant digits, accuracy, and precision
- Use a calculator to find squares, cubes, square roots, and cubic roots of whole numbers, fractions, and decimals
- Extract and interpret information from line, bar and circle graphs
- Draw line and bar graphs
- Solve equations, formulas, and related application problems
- Use a protractor, compass and straightedge to measure angles, bisect lines, angles and arcs, find the centre of a circle and construct a perpendicular to a line
- Use the Pythagorean theorem and properties of triangles to find missing sides and angles of triangles

Reading

- Scan for key information
- Read and correctly follow written directions
- Read a full text to understand, learn or evaluate
- Integrate and synthesize information from multiple sources
- Refer to appropriate written (hardcopy or online) resources when experiencing difficulty

Document Use

- Interpret information in graphs or charts
- Use a table of contents or index to find specific information

Writing

- Organize, record and document
- Write notes in point form

Oral Communication

- Follow oral instructions and explanations
- Seek or obtain information from peers and instructor

Working with Others

- Work independently alongside others
- Use appropriate and respectful communication with peers and others
- Receive and apply relevant feedback

Thinking Skills

- Apply prior learning to facilitate effective study and to integrate information from a text with background knowledge from outside the text
- Identify learning strengths
- Identify and set short and long term goals
- Maintain a personalized learning plan within an individualized educational setting
- Identify key facts and issues related to a problem
- Apply a variety of strategies in solving math-related problems
- Check that answers and solutions to problems are reasonable
- Build strategies for successfully writing math tests
- Prioritize tasks
- Use tools (calendars, agendas, checklists) to help organize tasks and for time management
- Identify, compare, contrast and critically evaluate multiple pieces of information while reading, listening and/or viewing

Digital Technology

- Use a scientific calculator
- May use online tools to communicate and to learn and practice mathematical skills

Continuous Learning

- Deepen understanding of skill strengths and areas in need of improvement
- Recognize preferred learning styles (learning by seeing, hearing or doing)
- Try new ways of doing things
- Continue studies in Foundations Level Trades Programs (except Electrical)