

WTCS Repository

10-804-114 College Technical Mathematics 1B

Course Outcome Summary

Course Information

Description This course is a continuation of College Technical Mathematics 1A. Topics include: performing operations on polynomials; solving quadratic and rational equations; formula rearrangement; solving systems of equations; and oblique triangle trigonometry. Emphasis will be on the application of skills to technical problems. Successful completion of College Technical Mathematics 1A and College Technical Mathematics 1B is the equivalent of College Technical Mathematics 1.

Total Credits 2.00

Pre/Corequisites

Prerequisite Each Wisconsin Technical College determines the General Education course prerequisites used by their academic institution. If prerequisites for a course are determined to be appropriate, the final Course Outcome Summary must identify the prerequisites approved for use by the individual Technical College.

Course Competencies

1. Perform operations on polynomials

Assessment Strategies

1.1. in an oral, written, or graphic product

Criteria

Performance will be satisfactory when you:

- 1.1. add, subtract, multiply, and divide polynomials
- 1.2. utilize appropriate technology
- 1.3. apply the process for solving technical problems according to the problem-solving criteria (i.e. you show work in a clear and logical manner, you verify the solution, solution is within stated range and reflects appropriate accuracy or precision, solution is labeled with appropriate units)

2. Factor algebraic expressions

Assessment Strategies

2.1. in an oral, written, or graphic product

Criteria

Performance will be satisfactory when you:

- 2.1. factor using the greatest common factor
- 2.2. factor binomials and trinomials
- 2.3. apply skill to technical problems

- 2.4. utilize appropriate technology
- 2.5. apply the process for solving technical problems according to the problem-solving criteria (i.e. you show work in a clear and logical manner, you verify the solution, solution is within stated range and reflects appropriate accuracy or precision, solution is labeled with appropriate units)

3. Solve quadratic equations over the set of real numbers

Assessment Strategies

- 3.1. in an oral, written, or graphic product

Criteria

Performance will be satisfactory when you:

- 3.1. identify coefficients of a quadratic equation in standard form
- 3.2. select appropriate method for solving second degree equations
- 3.3. generate the equation which satisfies the conditions of the problem
- 3.4. solve second degree equation using the selected method
- 3.5. select relevant solution(s)
- 3.6. apply skill to technical problems
- 3.7. utilize appropriate technology
- 3.8. apply the process for solving technical problems according to the problem-solving criteria (i.e. you show work in a clear and logical manner, you verify the solution, solution is within stated range and reflects appropriate accuracy or precision, solution is labeled with appropriate units)

4. Perform operations with rational expressions

Assessment Strategies

- 4.1. in an oral, written, or graphic product

Criteria

Performance will be satisfactory when you:

- 4.1. add, subtract, multiply, and divide rational expressions
- 4.2. apply skill to an applied technical problem
- 4.3. simplify complex fractions
- 4.4. utilize appropriate technology
- 4.5. apply the process for solving technical problems according to the problem-solving criteria (i.e. you show work in a clear and logical manner, you verify the solution, solution is within stated range and reflects appropriate accuracy or precision, solution is labeled with appropriate units)

5. Solve rational equations

Assessment Strategies

- 5.1. in an oral, written, or graphic product

Criteria

Performance will be satisfactory when you:

- 5.1. apply multiplication property to clear all denominators
- 5.2. solve equations
- 5.3. identify extraneous solutions
- 5.4. apply skill to technical problems
- 5.5. utilize appropriate technology
- 5.6. apply the process for solving technical problems according to the problem-solving criteria (i.e. you show work in a clear and logical manner, you verify the solution, solution is within stated range and reflects appropriate accuracy or precision, solution is labeled with appropriate units)

6. Solve systems of equations

Assessment Strategies

- 6.1. in an oral, written, or graphic product

Criteria

Performance will be satisfactory when you:

- 6.1. solve systems of two and three equations or formulas
- 6.2. check all solutions in the system
- 6.3. apply skill to technical problems
- 6.4. utilize appropriate technology
- 6.5. apply the process for solving technical problems according to the problem-solving criteria (i.e. you show work in a clear and logical manner, you verify the solution, solution is within stated range and reflects appropriate accuracy or precision, solution is labeled with appropriate units)

7. Solve oblique triangles

Assessment Strategies

- 7.1. in an oral, written, or graphic product

Criteria

Performance will be satisfactory when you:

- 7.1. use the Law of Cosines, Law of Sines, and right triangle methods when appropriate
- 7.2. apply skill to technical problems such as vectors
- 7.3. utilize appropriate technology
- 7.4. apply the process for solving technical problems according to the problem-solving criteria (i.e. you show work in a clear and logical manner, you verify the solution, solution is within stated range and reflects appropriate accuracy or precision, solution is labeled with appropriate units)
- 7.5. relate angle in standard position to its reference angle