

MAT087 Basic Mathematics with Lab

As a result of homework, lab work and classroom study, the students at the termination of this course will demonstrate the following knowledge and skills:

OUTCOMES	ACTIVITIES	ASSESSMENT
Apply the understanding of place value and the operations on whole numbers	<ol style="list-style-type: none"> 1. Add, subtract, multiply, and divide whole numbers. 2. Demonstrate an understanding of place value by writing a given numeral in standard notation, expanded notation, and in words. 3. Round whole numbers to a given place value. 4. Find the prime factorization of a number and express it in exponential notation. 5. Simplify an expression using the order of operations agreement. 6. Solve related application problems. 	<ol style="list-style-type: none"> 1. Hand-in assignments 2. In-class problems 3. In-class tests
Apply the operations on rational numbers and mixed numerals	<ol style="list-style-type: none"> 1. Add, subtract, multiply, and divide rational numbers and mixed numerals. 2. Form equivalent fractions in higher and lower terms. 3. Simplify rational expressions according to the order of operations agreement. 4. Locate rational numbers on the number line. 5. Solve related application problems. 	<ol style="list-style-type: none"> 1. Hand-in assignments 2. In-class problems 3. In-class tests
Understand the structure of a decimal number system and apply the basic operations on decimals	<ol style="list-style-type: none"> 1. Demonstrate the understanding of decimal place value by <ol style="list-style-type: none"> a. expressing a numeral in expanded notation, standard notation, and in words. b. rounding a decimal numeral to a given place value. c. comparing decimal numerals. 2. Convert between rational numbers and decimals. 3. Add, subtract, multiply, and divide decimal numerals. 4. Simplify decimal expressions according to the order of operations agreement. 	<ol style="list-style-type: none"> 1. Hand-in assignments 2. In-class problems 3. In-class tests
Understand the concept of percent and its relationship to fractions and decimals	<ol style="list-style-type: none"> 1. Convert among decimal fraction and percent notation. 2. Solve the basic 3 types of percent equations. 3. Solve real life application problems, such as simple interest and sales tax, percent increase and decrease, sales discount and commission. 	<ol style="list-style-type: none"> 1. Hand-in assignments 2. In-class problems 3. In-class tests
Apply the concepts of ratio and proportion to solve problems that can be modeled by these types of relationships	<ol style="list-style-type: none"> 1. Find rate and unit rate. 2. Solve proportions. 3. Solving application problems using proportion. 	<ol style="list-style-type: none"> 1. Hand-in assignments 2. In-class problems 3. In-class tests
<u>Find the perimeter, area, and volume of geometric figures in standard units</u>	<ol style="list-style-type: none"> 1. Use the appropriate formula to find perimeter, area and volume. 2. Use the appropriate unit of measure and equivalent conversions where applicable. 	<ol style="list-style-type: none"> 1. Hand-in assignments 2. In-class problems 3. In-class tests

Use both the English and metric systems of measurements appropriately.	<ol style="list-style-type: none">1. Recognize the appropriate unit of measure for a given situation; e.g. volume, distance, area, etc.2. Make conversions within each system and between systems.	<ol style="list-style-type: none">1. Hand-in assignments2. In-class problems3. In-class tests
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