Math 085 Course Objectives

1. Use the rules of signed number arithmetic to perform operations on integers. These operations include, but are not limited to, addition, subtraction, multiplication, division, exponentiation (raising numbers to powers), negation (finding additive inverses or opposites), ordering, and evaluating absolute values.

2. Translate words or problem situations to algebraic expressions.

3. Perform operations on rational numbers. These operations include, but are not limited to, addition, subtraction, multiplication, division, simplification, finding multiplicative inverses (reciprocals), evaluating expressions, finding equivalent fractions, and converting between improper fractions and mixed numbers. The rational numbers involved may include proper fractions, improper fractions, or mixed numbers.

4. Solve one or two-step linear equations involving integers and fractions.

5. Find prime factorizations for whole numbers, determine whether a given number is prime, and sketch the prime factorization trees for whole numbers.

6. Find multiples and factors of numbers. Find the least common multiple (LCM) and the greatest common factor (GCF) of two or three numbers.

7. Perform operations on decimal numbers. These operations include, but are not limited to, addition, subtraction, multiplication, division, and ordering.

8. Solve two or three-step linear equations involving decimal numbers. These may involve combining like terms.

9. Solve application problems. These may involve arithmetic, finding averages (means), rounding, or setting up and solving linear equations.

10. Find and simplify ratios corresponding to given situations. Solve proportions arising from applications, including those involving similar figures and unit rates/prices.

11. Round whole numbers and decimal numbers to a given place value.

12. Convert among fractional, decimal, and percent notation.

13. Solve application problems involving percents. These may involve finding percent increase or decrease. They may also involve setting up and solving linear equations.

14. Find the perimeter (or circumference) and area of polygons and circles. [Problems may involve complicated regions such as circles inside rectangles.]

15. Evaluate algebraic expressions given specific values for the variables. [Problems may involve using the order of operations.]

16. Use the order of operations to simplify arithmetic expressions. The expressions may involve integers, fractions, or decimal numbers.

17. Collect and combine like terms to simplify algebraic expressions. The coefficients in the expressions may be integers, fractions, or decimal numbers.

18. Without a calculator, find square roots of perfect squares and approximate square roots of numbers that are not perfect squares.

19. Given the lengths of two sides of a right triangle, use the Pythagorean Theorem to find the length of the unknown side. [In cases involving numbers that are not perfect squares, students should be prepared to estimate.]

Prairie State College, Department of Mathematics
August 17, 2009

Do not use obsolete objectives!