MA 6C	Mathematics Embedded Credit
Cape Career & Technology Center	Last Update: April 2017
Topic: Basic Algebra	Focus: Formulas

Show-Me Standards: MA1, MA2, MA4	MO Grade Level Expectations: N2C10, A2A10, A2C9	NCTM Standards: 4A, 4B, 5B, 5E

OBJECTIVE:

Students will apply basic algebra skills to formulas from various career fields to determine solutions.

Introduction:

Once students have a grasp on basic algebra terms, expressions, and methods for solving and simplifying algebraic expressions, they are ready for the next step: application. In applying basic algebra skills the students need to know how to take information and place it into a formula. After successfully doing this, the student then needs to know how to use the information to produce the solution that is sought by the question.

EXAMPLE #1:

The VICA Club at the Career and Technology Center makes $2.50 from every t-shirt they sell at the 'spring-fling'. If the VICA Club made $100 at the 'spring-fling' on t-shirt sales how many shirts were sold.

STEP 1: Create a formula to represent the problem.

$2.50(t) = $100, where (t) equals the number of t-shirts sold.

STEP 2: Solve for the variable.

$$\frac{2.5t}{2.5} = \frac{100}{2.5}$$
$$t = \frac{100}{2.5}$$
$$t = 40$$

STEP 3: Check your answer.

$$\$2.50(t) = \$2.50(40) = \$100$$

EXAMPLE #2:

The Child Care Class enters into an agreement with a toy manufacturer to raise money to supply books to local Daycares. The toy manufacturer charges $200 plus $5.00 per child for the month to rent their equipment. The toy manufacturer agrees to provide the Child Care class with 1/20 of the money raised for five 'new' rental contracts over a one-year rental agreement. The Child Care class finds five Daycares to participate in the program. Respectively, the Daycares have 10, 15, 10, 20, and 25 children in their programs. What amount did the Child Care class raise for the purchase of books?

STEP 1: Create a formula to represent the problem.

How many children are in the Daycares that signed up for the rental program? 10 + 15 + 10 + 20 + 25 = 80.

$$[\frac{1}{20}[(5*\$200)+(\$5*c)]]*12 = amount$$ (Where c equals the number of children in the Daycares)

STEP 2: Solve for the variable.

$$\frac{1}{20}[(5*\$200)+(\$5*c)] =$$

$$\frac{1}{20}[\$1000+(\$5*80)] =$$

$$\frac{1}{20}[\$1000+\$400] =$$ The Child Care class raised $840 for the purchase of books.

$$\frac{1}{20}[\$1400] =$$

$$\$70*12 = \$840$$

Solve the following.

1. Using the formula: $d = 50t$, where d is the distance covered per day and t is the time traveled, calculate how long it will take for the VICA Club to travel from Ironton, MO to Kansas City, MO for the VICA Nationals, if Kansas City is 322 miles from the Career and Technology Center?

2. The cost to print brochures for two printing businesses are represented by the following formulas: Company A – Cost = $45.00 + $0.07n, and Company B – Cost = $0.45n, where n is the number of brochures to be produced. Which company would you choose to print your brochure if you want to get 1250 of the brochures?

3. If Board Feet = nominal size times length (in feet) divided by 12, then how many Board feet does a 2x6 with a linear length of 16 feet have?

4. If Board Feet = nominal size times length (in inches) divided by 144, then how many linear feet are in 680 BF of 2x10?

5. The volume of a cube equals side cubed. If the Computer Repair class is mailing a monitor, what is the volume of the box they are using if one side of the square box is 18"?

6. Tanya has $1.55 in nickels and dimes. She has 7 more nickels than dimes. Find the number of dimes and nickels that Tanya has.