

# The DIETS Method

approach for solving application problems

Every textbook has its own list of steps to solve application problems (i.e., word problems).

This method uses the Acronym DIETS to solve the problems: DIETS stands for:

**D**  $\equiv$  Determine the known and unknown values

**I**  $\equiv$  Identify the known values and assign the unknown values using variables

**E**  $\equiv$  Equations using words (i.e., distant = rate  $\cdot$  time; area = width  $\cdot$  height; etc)

**T**  $\equiv$  Translate into an algebraic equation

**S**  $\equiv$  Solve and answer the question(s)

Example:

The volume of a 10 ounce box of cereal is 182.742 cubic inches. The width of the box is 3.1875 inches less than the length, and its depth is 2.3125 inches. Find the length and width of the box to the nearest thousandth.

**D** The known values are Volume and Depth, unknown values are Width and Length

**I** We know that

Volume = 182.742 and Depth = 2.3125 and we will assign the variables as  
W = Width and L = Length

We also have the relationship that  $W = L - 3.1875$

**E** The Word Equation will be

Volume = Width  $\cdot$  Length  $\cdot$  Depth

**T** Translating we have

$$182.742 = W \cdot L \cdot 2.3125$$

$182.742 = 2.3125(L - 3.1875)L$ , after substituting what we know about W.

**S** Solving this quadratic equation, we must first rewrite

$182.742 = 2.3125(L^2 - 3.1875L) = 2.3125L^2 - 7.37109375L$  then write into standard form  
 $2.3125L^2 - 7.37109375L - 182.742 = 0$ . Here we will use the Quadratic Formula and get

$L = 10.625$  or  $-7.438$  (rounded to the nearest thousandth).

Since L cannot be negative, we keep only the positive answer.

Also,  $W = 10.625 - 3.1875 = 7.4375$ , but round to 7.438.

The solution is Length is 10.625 inches and Width is 7.438 inches.