What is a Variable?
Student Activity

Name _____

Class _____

In these activities you will create and use expressions with variables to solve problems. After completing the activities, discuss and/or present your findings to the rest of the class.

Activity 1 [Page 1.3]

1. Create an expression that satisfies each condition.

    a. the value of the expression will always be a multiple of 4.

    b. the value of the expression is always a multiple of 10.

    c. the value of the expression is the same as the variable.

    d. the value of the expression will be always be equal to 15.

Activity 2 [Page 1.3]

1. The cost for a yearly membership in Book Club A is $10, downloading a book costs $2, x represents the number of books downloaded. Enter an expression for the cost of buying books through Book Club A. Check your answers with the file.

    a. How much will it cost if you download 13 books in a year?

    b. Suppose you could only spend up to $50. How many books could you download?

   c. Book Club B offers a membership for only $5 but charges $3 a book. Enter the expression for buying books through Book Club B and use it to figure out which book club would be a better deal.

2 Suzie has 5 more than twice as many marbles as Sam.

   a. If *x* represents the number of marbles Sam has, which of the expressions makes sense for the number of marbles Suzie has. Create the expressions and check your thinking using different values for the variable. $2x+5$, $5x+2$, $2x-5$, $x+7$

   b. Use your answer from part a to find the number of marbles Suzie has when Sam has 12 marbles.

   c. How many marbles does Sam have if Suzie has 35 marbles?

Activity 3 [Page 1.5]

1. Reset page 1.5 and change Steps to $\frac{1}{2}$.

   a. What is the value of the expression when $x = 3\frac{1}{2}$?

b. Explain why $3\left(3\frac{1}{2}\right) = 10\frac{1}{2}$.

c. Change the 3 to a number so all of the values of the expression will be whole numbers. Explain your reasoning.

2. If x stands for the number of feet, write an expression to convert feet to inches. Check that your expression makes sense in the context by finding each of the following and thinking about whether the answers are reasonable.

a. 1 foot

b. 3 feet

c. $5\frac{7}{12}$ feet

d. $15\frac{2}{3}$ feet