Activity 4.1g Model Creation

Introduction

In order to effectively use a CAD program to create 3D models of a part, a designer must be familiar with the basic strategies of additive and subtractive modeling methods. This activity will help you understand the sketching tools and extrusion features that are common to most CAD programs, plan an efficient method of simple model creation, and gain experience creating simple 3D models.

Equipment

- Computer with 3D CAD solid modeling program

Procedure

Follow the instructions to create 3D solid models of each of the following objects using the specified method(s) and respond to the prompts.

1. Create a 3D solid model of the object above using the most efficient method.

   a. Which method (additive, subtractive, or a combination of additive and subtractive) did you use? Why do you feel it was most efficient?

All dimensions are in inches.
2.

All dimensions in mm.

a. Create a 3D solid model of the object above using the most efficient method possible. The hole extends through the part.

b. Describe the method you used to model the object? Why do you feel it was most efficient?
3.

All dimensions are in inches.

a. Create a 3D solid model of the object above using only additive procedures.

b. Create a 3D solid model of the object above using only subtractive procedures.

c. Which method (additive, subtractive, or a combination of additive and subtractive) do you feel would be the most efficient method for creating the object? Why?
4.

All dimensions are in inches.

a. Create a 3D solid model of the object above in the most efficient manner possible.

b. Describe the method you used to create the object.

c. Can you think of a method to create the 3D solid model that would be more efficient? Explain

Conclusion

1. Why is it important to consider efficiency when planning your method of creation before beginning to model an object in CAD?

2. How can the information provided in the browser of the CAD software help you compare the efficiency of two different methods of modeling the same object?