

3 TAKS PREPARATION



TAKS Obj. 7
TEKS G.6.C

REVIEWING ORTHOGRAPHIC AND ISOMETRIC DRAWINGS

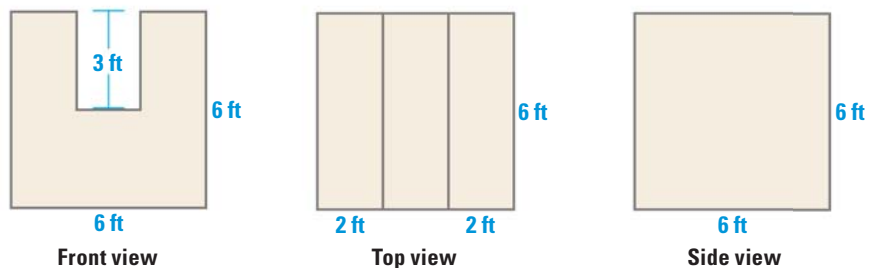
Technical drawings are drawings that show different viewpoints of three-dimensional objects. You can use technical drawings to determine characteristics of the objects, such as their surface area or volume. Two types of technical drawings are *orthographic projections* and *isometric drawings*.

An orthographic projection is a two-dimensional drawing of the front, top, and side views of a three-dimensional object.

An isometric drawing is a visual representation of a three-dimensional object in two dimensions.

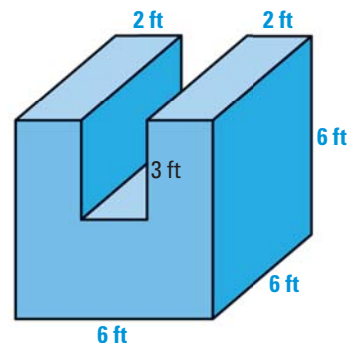
EXAMPLE

What is the volume of a three-dimensional object with the dimensions shown in the three views below?



Solution

STEP 1 Draw the three-dimensional object in an isometric view, labeling each dimension appropriately. Notice that the object is a rectangular prism with a section cut out of it.



STEP 2 Calculate the volume of the object.

$$\begin{aligned}
 \text{Volume of the object (cubic feet)} &= \text{Volume of the rectangular prism (cubic feet)} - \text{Volume of the cut-out section (cubic feet)} \\
 &= (6)(6)(6) - (6 - 4)(3)(6) \\
 &= 180
 \end{aligned}$$

► The volume of the object is 180 cubic feet.