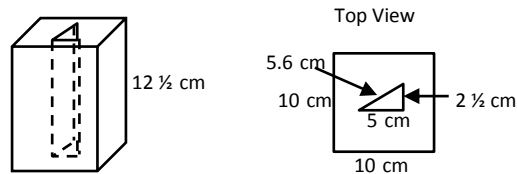
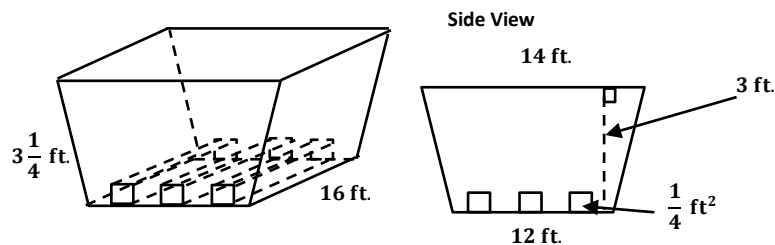


Problem Set

1. A child's toy is constructed by cutting a right triangular prism out of a right rectangular prism.



- a. Calculate the volume of the rectangular prism.
 - b. Calculate the volume of the triangular prism.
 - c. Calculate the volume of the material remaining in the rectangular prism.
 - d. What is the largest number of triangular prisms that can be cut from the rectangular prism?
 - e. What is the surface area of the triangular prism (assume there is no top or bottom)?
2. A landscape designer is constructing a flower bed in the shape of a right trapezoidal prism. He needs to run three identical square prisms through the bed for drainage.



- a. What is the volume of the bed without the drainage pipes?
- b. What is the total volume of the three drainage pipes?
- c. What is the volume of soil if the planter is filled to $\frac{3}{4}$ of its total capacity with the pipes in place?
- d. What is the height of the soil? If necessary, round to the nearest tenth.
- e. If the bed is made of 8 ft. \times 4 ft. pieces of plywood, how many pieces of plywood will the landscape designer need to construct the bed without the drainage pipes?
- f. If the plywood needed to construct the bed costs \$35 per 8 ft. \times 4 ft. piece, the drainage pipes cost \$125 each, and the soil costs \$1.25/cubic foot, how much does it cost to construct and fill the bed?