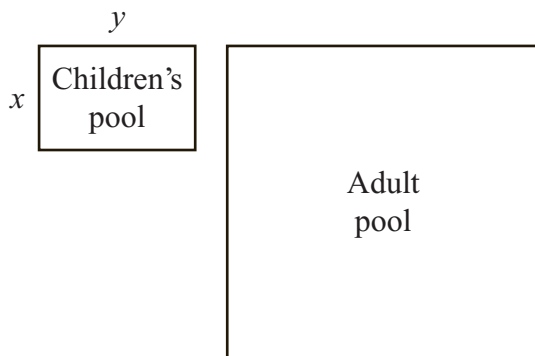


The children's pool and the adult pool in a recreation center are both in the shape of right rectangular prisms. In the diagram below, the two rectangles represent the children's pool and the adult pool.



Define  $x$  and  $y$  as follows:

- $x$  = the width, in yards, of the children's pool
- $y$  = the length, in yards, of the children's pool

a. Write an expression using  $x$  and  $y$  to represent the area of the children's pool.

The adult pool has the following measurements:

- The width of the adult pool is 3 times the width of the children's pool.
- The length of the adult pool is 2 times the length of the children's pool.

b. Write an expression using  $x$  and  $y$  to represent the area of the adult pool.

c. What is the ratio of the area of the children's pool to the area of the adult pool? Show or explain how you got your answer.

Both of the pools will be filled with water. The depth of the adult pool is 4 times the depth of the children's pool.

d. What is the ratio of the volume of water in the children's pool to the volume of water in the adult pool? Show or explain how you got your answer.