

A Treasure Hunt (continued)

- ② The only way to get out of the room is through the trap door in the ceiling. About how much time will pass before the water lifts Miriam to the trap door? Show your work. Explain how you used representations to help you solve the problem.

40 minutes will pass by the time Miriam will reach the trap door.

minutes increase by 10 min	Length L	Width W	Height H	Volume V
0	6	4	3	72
10	5	4	$3\frac{3}{5}$	72
20	4	4	$4\frac{1}{2}$	72
30	3	4	6	72
40	2	4	9	72

$6 \times 4 \times 3 = 72$
 $5 \times 4 \times 3\frac{3}{5} = 72$
 $4 \times 4 \times 4\frac{1}{2} = 72$
 $3 \times 4 \times 6 = 72$
 $2 \times 4 \times 9 = 72$

minutes increase by 10 min
 Length L decreases by 1ft every 10 min.
 Width W stays the same
 Height H
 Volume V - stays the same

$L \times W \times H$ should always equal 72.
 Trying to get to the height of 9ft because that's the height of the room she's in.

Conjecture to find the missing height: $V \div (L \times W) = H$

This representation helped me organize my work and helped me see different conjectures that will make it easier to solve.