

Solutions for FEBRUARY '23 Logic Challenges

1. In our Community Centre, there is a huge swimming pool with four pipes that can be used to fill the pool.
- The First pipe can fill the pool completely in exactly 2 days.
 - The Second pipe can fill the pool completely in exactly 3 days.
 - The Third pipe can fill the pool completely in exactly 4 days.
 - The Fourth pipe can fill the pool completely in exactly 6 hours.

If all four pipes are used simultaneously, how long will it take to fill up the pool completely?

Solution:

In 1 hour, the proportion of the swimming pool being filled by each of the pipes is:

1st pipe: $1/48$

2nd pipe: $1/72$

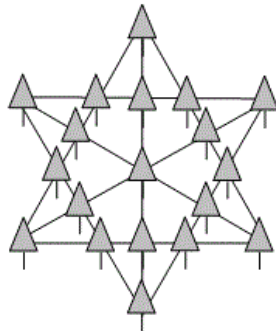
3rd pipe: $1/96$

4th pipe: $1/6$

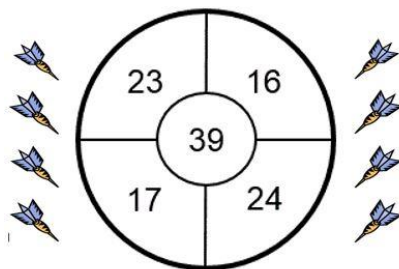
Therefore, $1/48 + 1/72 + 1/96 + 1/6 = 0.0208 + 0.0139 + 0.0104 + 0.1667 = 0.2118\%$ per hr.

Then, $0.2118 * 24 = \underline{5.083 \text{ hrs or approximately 5 hrs}}$ (to fill up the pool completely in 1 day).

2. A farmer wants to plant 19 trees in 9 rows with 5 trees in a row. Show how the farmer can do this Solution:



3. Kim threw some darts at this dartboard. Every dart landed on a number on the board and she scored exactly 100. If numbers can be used more than once, how many darts did she throw to score 100 and which numbers did she land on?
(Note: There may be more than one solution.)



Solution: 6 darts (17, 17, 17, 17, 16 and 16)