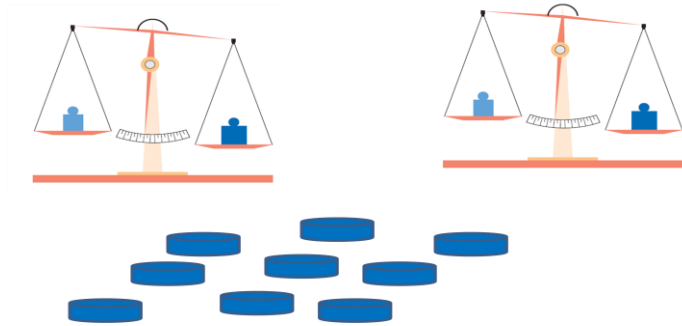


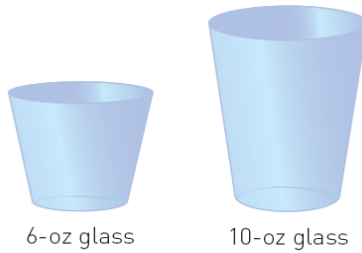
Story 1: That's a Meanie Genie

Alley may use each of the two balance scales exactly once. Is it possible for Alley to select the slightly heavier stone containing the Rama Nujan from among the nine identical-looking stones? If so, explain how, if not, explain why not.



Story 3: The Fountain of Knowledge

Trey, in desperation, wondered whether it was possible to use only the unmarked 6- and 10-ounce glasses to produce exactly 8 ounces in the 10-ounce glass. Do you think it's possible? If so, explain how, and if not, explain why. Point of clarification: You may only use one 6 oz glass, but as many 10 oz glasses as you wish.



Story 5. Dodgeball

Player One begins by filling in the first horizontal row of his game board with a run of X's and O's. That is, on the first line of his board, he will write either an X or an O in each box.

Then Player Two places either an X or an O in the first box of her board. So at this point, Player One has filled in the first row of his board with six letters, and Player Two has filled in the first box of her board with one letter.

The game continues with Player One writing down either an X or an O in each box of the second horizontal row of his board.

Then Player Two writes one letter (an X or an O) in the second box of her board.

The game proceeds in this fashion until all of Player One's boxes are filled with X's and O's; thus, Player One has produced six rows of six marks each, and Player Two has produced one row of six marks.

All marks are visible to both players at all times.

Player One wins if any of his rows exactly matches Player Two's row (Player One matches Player Two).

Player Two wins if her row does not match any of Player One's rows (Player Two dodges Player One).

Question: Which player can always win if they play “smart”? (Play some rounds to figure it out.)

Player One's game board

1						
2						
3						
4						
5						
6						

Player One's game board

1						
2						
3						
4						
5						
6						

Player Two's game board

1	2	3	4	5	6

Player Two's game board

1	2	3	4	5	6

Player One's game board

1						
2						
3						
4						
5						
6						

Player One's game board

1						
2						
3						
4						
5						
6						

Player Two's game board

1	2	3	4	5	6

Player Two's game board

1	2	3	4	5	6

Player One's game board

1						
2						
3						
4						
5						
6						

Player One's game board

1						
2						
3						
4						
5						
6						

Player Two's game board

1	2	3	4	5	6

Player Two's game board

1	2	3	4	5	6