# *Ace Your Dreams* Worksheet (Middle School)

## SOLUTIONS

**Problem:**

Ding Ning won the gold medal in table tennis. She was one of 32 players in Round 3 of the competition. Each consecutive round of table tennis, 50% of the players were eliminated. How many games of table tennis did Ding Ning win to make it to the finals if she entered the competition in Round 3?

4 games

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**How did you get your answer? Use words.**

After Ding Ning won 1 game, there were 16 opponents left. After she won her second game, there were 8 left. After she won her 3rd game, there were 4 players left. After she won her 4th game, there were only 2 players left in the running for the gold medal. So, Ding Ning won 4 games to get to the finals.

Another way to think of this is that in order to reach 2 players, we need to find half of a half of a half of a half of 32.

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**Larry says that $6\frac{1}{2}\%$ of the 32 contestants from Round 3 participate in the final game that determines who wins gold and who wins silver. Is he right or wrong?**

Larry is wrong. In the final game, 2 out of the 32 contestants participate. That's $\frac{1}{16}$ which is equal to $6\frac{1}{4}\%$, not $6\frac{1}{2}\%$.

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**Find all correct answers based on the original problem.**

a) $\frac{1}{4}$ = _____ %

b) $\frac{1}{8}$ = _____ %

c) $\frac{1}{32}$ = _____ %

25%, $12\frac{1}{2}\%$, $3\frac{1}{8}\%$

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**The winner of a game of table tennis is the first person to have a 2 point lead with at least 11 points. What is the least number of points Ding could have scored from all of her games combined to win the final game and earn the gold medal?**

Ding would need to score 11 x 4 = 44 points to make it to the final game, then an additional 11 points to win the gold medal. That's 55 points.