

MATHCOUNTS[®] Problem of the Week Archive

We're #ALLCAPS – June 11, 2018

Problems & Solutions

Congratulations to the Washington Capitals hockey team on winning the Stanley Cup! To celebrate the NHL champions, we have a few hockey themed problems for you to solve.

In the quest to win the Stanley Cup, the Washington Capitals played in four playoff rounds. During each round, they faced a different opponent in a best-of-seven series, in which the winner was the first team to win four games. What is the absolute difference between the greatest and least number of games that a team could play in four such rounds to become the Stanley Cup Champions?

The greatest number of games would occur if each of the four series went the maximum seven games, for a total of $4 \times 7 = 28$ games. The least number of games would occur if each of the four series ended after only four games, for a total of $4 \times 4 = 16$ games. The difference is $28 - 16 = 12$ games.

The Caps faced the Columbus Blue Jackets in the first round, and advanced to the next round after 6 games. In the second round, it took another 6 games for the Caps to win their series against the Pittsburgh Penguins. In the next round, the Caps played 7 games against the Tampa Bay Lightning to win the NHL Eastern Conference Finals. Ultimately, the Caps won the Stanley Cup Finals after battling with the Las Vegas Knights in 5 games. What fraction of the 24 playoff games in which the Caps played did they win? Express your answer as a common fraction.

Since the Caps was the winner in each of the four rounds, we know they won a total of $4 \times 4 = 16$ of the 24 playoff games in which they played. That's $16/24 = 2/3$ of the games.

During each of the four playoff rounds, the Caps scored 24, 19, 23 and 20 goals, respectively. Based on this and the information in the previous problem, what is the average number of goals the Caps scored per game during the playoffs? Express your answer as decimal to the nearest tenth.

From the previous problem, we know that the Caps played 24 playoff games. We also know that they scored a total of $24 + 19 + 23 + 20 = 86$ goals. Therefore, the average number of goals scored per game is $86/24 \approx 3.6$ goals.

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