NBA Apply Problem

Who Should Take the Free Throw?

powered by NBA data

When the score is really close, and time is running out, coaches need to decide which player has the best chance of making a shot that will win the game. If you were the coach, how would you decide who should take the game-winning shot?

Game-Winning Shot
www.vimeo.com/190265748

Imagine that your team trails by 1 point with less than 10 seconds left in the game. The tallest player on the other team—not wanting your team to score an easy basket to win—positions himself in the lane to prevent an easy layup. But he stays there too long without guarding anyone, and he is called for a violation of the Defensive Three-Second Rule.

As a result, a *technical foul* is called, and your team is awarded a *technical free throw*. You get to decide who will take it. Who will you pick?

Pick a team from either league, and analyze the players' free throw shooting data. Which player has the best chance of making the free throw? How will you use the data to decide which player to choose? Rank the players on your team from best to worst, and explain how you arrived at your ranking.

Use statistics from the NBA or WNBA to analyze players' free throw data.

NBA Stats
www.nba.com/stats

WNBA Stats
www.wnba.com/stats

Which player would you choose to shoot the technical free throw? How did you decide? Explain your method using precise mathematical language.

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Evaluation Criteria
Your response will be judged on four criteria:

1. Recording your ideas about choosing a player who should take the free throw
2. Describing the mathematical method that you used to make your decision
3. Performing calculations to rank the players and record the results
4. Interpreting the results and stating a conclusion about which player should take the free throw

Criteria	Scale				
	4	**3**	**2**	**1**	**0**
Ideas	Clearly states any assumptions and records ideas with careful explanation.	States assumptions and records ideas without a clear explanation.	States assumptions and records ideas with minor errors.	Does not completely state assumptions or record ideas.	Does not make a meaningful attempt to complete task.
Mathematical Method	Describes a method that will effectively analyze players' ability to make a free throw.	Describes a method that could work but has minor errors.	Describes a method that might work but has moderate errors.	Describes a method that will not work because of major errors.	Does not make a meaningful attempt to complete task.
Calculations	Performs calculations correctly and records results clearly and accurately.	Performs most calculations correctly and records results clearly and accurately.	Performs some calculations correctly and records results clearly.	Calculations have many errors and may not be reported clearly.	Does not make a meaningful attempt to complete task.
Conclusion	Interprets the results correctly and states conclusion clearly and accurately.	Interpretation and conclusion are mostly correct and stated clearly.	Interpretation and conclusion are somewhat correct and stated mostly clearly.	Interprets the results incorrectly and does not state a conclusion clearly or accurately.	Does not make a meaningful attempt to complete task.

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