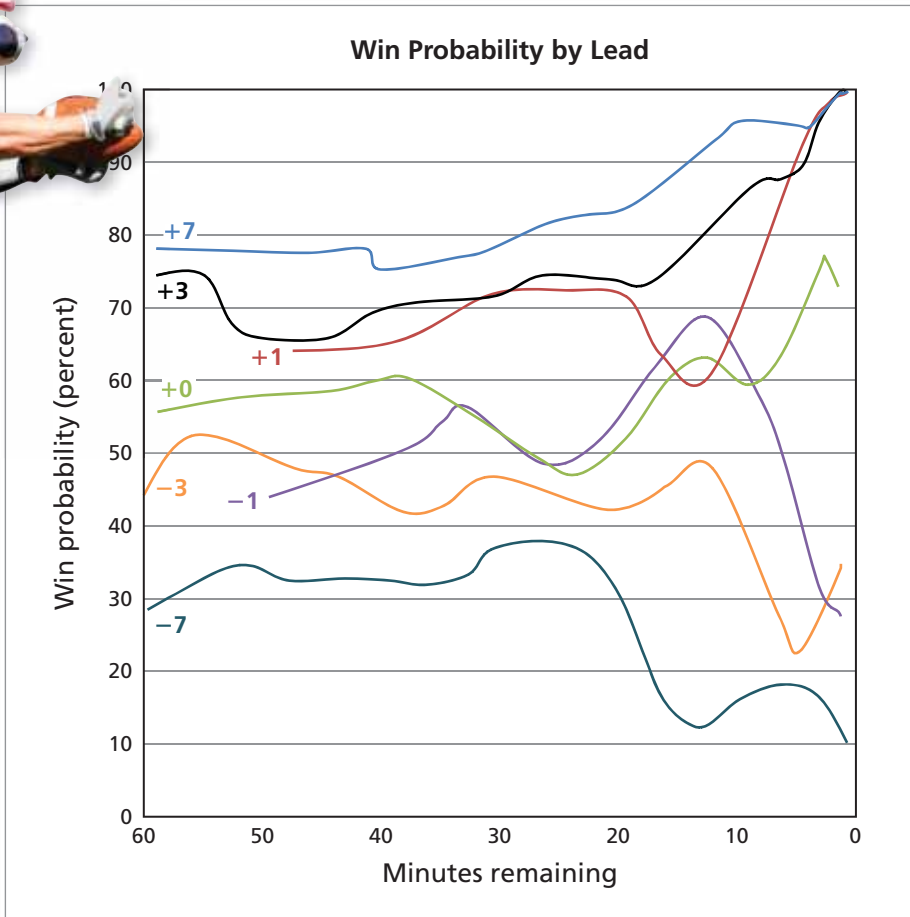EXAMPLE 4   **Describing the Probability of Winning**

Statistics from NFL games have been analyzed to produce the following graph, which compares the probability of winning for the team with possession of the ball, the point difference, and the minutes remaining in the game. The graph is based on all of the regular season NFL games from 2000 through 2007.

Win Probability by Lead

At any given time in a football game, a team's probability of winning depends on its lead. When there is not much time left in the game, the team with the lead is likely to win even if it is only ahead by 7 points or less. Surprises do, however, occur. For instance, on November 11, 2010, the Atlanta Falcons scored a touchdown and beat the Baltimore Ravens with only 20 seconds left in the game.

Describe the implications of the graph for a team that is 3 points ahead.

SOLUTION

A team that is 3 points ahead and has possession of the ball is likely to win, regardless of the number of minutes remaining.

• With 20 to 30 minutes remaining, the team's chance of winning is about 70%.

• With 10 minutes remaining, the team's chance of winning increases to about 85%.

• With 5 minutes remaining, the team's chance of winning is about 90%.

✓ **Checkpoint**   Help at *Math*.and**YOU**.com

Suppose you are the coach of a football team. Explain how you could use the graph above to make decisions about how your team plays. Describe the different strategies you would use depending on the point difference between your team and your opponent.