Think Academy

2025 Sept AMC 10 Week 2 Day 3 - Conditional Probability

1 A student's shooting accuracy for one shot is $\frac{9}{10}$, and the probability of making two consecutive shots is $\frac{1}{2}$. If the student has just made a shot, then what is the probability that the next shot is also successful?

A. $\frac{1}{5}$ B. $\frac{2}{5}$ C. $\frac{3}{5}$ D. $\frac{5}{9}$ E. $\frac{2}{9}$

2 A and B each shoot once at the same target. The probability that A hits the target is $\frac{1}{3}$, and the probability that B hits the target is $\frac{1}{2}$. Given that the target is hit at least once, what is the probability that A hits the target?

A. $\frac{1}{4}$ B. $\frac{1}{3}$ C. $\frac{1}{2}$ D. $\frac{2}{3}$ E. $\frac{3}{4}$

3 A medical device has two consumable components, A and B. After each use, the probability that component A needs to be replaced is 0.3, and the probability that component B needs to be replaced is 0.5. Given that at least one component must be replaced after the first use, what is the probability that both A and B need to be replaced?

A. 0.15 B. 0.65 C. $\frac{3}{13}$ D. $\frac{5}{13}$ E. $\frac{6}{13}$

4 Two players A and B compete for the championship in a Go match. The match follows a "best of three" format. The probability that A wins any individual game is $\frac{2}{3}$, and the outcomes of different games are independent. Given that A wins the championship, what is the probability that the match lasts for 3 games?

A. $\frac{3}{10}$ B. $\frac{7}{10}$ C. $\frac{1}{2}$ D. $\frac{2}{5}$ E. $\frac{1}{5}$

5 Andy can choose to join from 2 science clubs, 4 art clubs, and 3 sports clubs. If Andy signs up for two clubs, then given that exactly one of them is an art club, what is the probability that the

other one is a sports club?

A. $\frac{3}{5}$ B. $\frac{6}{13}$ C. $\frac{1}{2}$ D. $\frac{3}{4}$ E. $\frac{2}{5}$