

UNIT 12 EXERCISES 6-10

PROBABILITY

- 2003A 8. What is the probability that a randomly drawn positive factor of 60 is less than 7?
- (A) $\frac{1}{10}$ (B) $\frac{1}{6}$ (C) $\frac{1}{4}$ (D) $\frac{1}{3}$ (E) $\frac{1}{2}$
- 2015B 9. Larry and Julius are playing a game, taking turns throwing a ball at a bottle sitting on a ledge. Larry throws first. The winner is the first person to knock the bottle off the ledge. At each turn the probability that a player knocks the bottle off the ledge is $\frac{1}{2}$, independently of what has happened before. What is the probability that Larry wins the game?
- (A) $\frac{1}{2}$ (B) $\frac{3}{5}$ (C) $\frac{2}{3}$ (D) $\frac{3}{4}$ (E) $\frac{4}{5}$
- 2011B 9. Two real numbers are selected independently at random from the interval $[-20, 10]$. What is the probability that the product of those numbers is greater than zero?
- (A) $\frac{1}{9}$ (B) $\frac{1}{3}$ (C) $\frac{4}{9}$ (D) $\frac{5}{9}$ (E) $\frac{2}{3}$

- 2015A 9. A box contains 2 red marbles, 2 green marbles, and 2 yellow marbles. Carol takes 2 marbles from the box at random; then Claudia takes 2 of the remaining marbles at random; and then Cheryl takes the last 2 marbles. What is the probability that Cheryl gets 2 marbles of the same color?
- (A) $\frac{1}{10}$ (B) $\frac{1}{6}$ (C) $\frac{1}{5}$ (D) $\frac{1}{3}$ (E) $\frac{1}{2}$
- 2011A 10. A pair of standard 6-sided fair dice is rolled once. The sum of the numbers rolled determines the diameter of a circle. What is the probability that the numerical value of the area of the circle is less than the numerical value of the circle's circumference?
- (A) $\frac{1}{36}$ (B) $\frac{1}{12}$ (C) $\frac{1}{6}$ (D) $\frac{1}{4}$ (E) $\frac{5}{18}$
- 2017A 10. Chlo   chooses a real number uniformly at random from the interval $[0, 2017]$. Independently, Laurent chooses a real number uniformly at random from the interval $[0, 4034]$. What is the probability that Laurent's number is greater than Chlo  's number?
- (A) $\frac{1}{2}$ (B) $\frac{2}{3}$ (C) $\frac{3}{4}$ (D) $\frac{5}{6}$ (E) $\frac{7}{8}$