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Lesson 11.3 Independent Events

Draw a tree diagram to represent each situation.

1. Popping a balloon randomly from a centerpiece consisting of 1 black balloon and 1 white balloon, followed by tossing a fair six-sided number die

2. Randomly selecting a marble, replacing it, and randomly selecting a marble again from a bag containing 1 black marble, 1 green marble, and 1 red marble

3. Drawing a bead randomly from a bag containing 1 black bead, 1 white bead, 1 green bead, and 1 red bead, followed by tossing a fair coin

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Draw a tree diagram to represent each compound event.

4. Randomly drawing three tokens, and replacing each one before the next draw, from a bag containing one $2 token and one $5 token

5. Recording the weather outcome for each day as either rain or shine for four consecutive days, assuming that each outcome is equally likely

6. Randomly choosing a mode of transportation from bus, car, or train, on Saturday and Sunday, assuming all are equally likely

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Solve. Show your work.

7. A game is played using a fair coin and a fair six-sided number die. An outcome of heads on the coin and 5 or 6 on the die wins the game.

a) Draw a tree diagram to represent the possible outcomes of this game.

b) Find the probability of winning the game in one try.

c) Find the probability of losing the game in one try.

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Solve. Show your work.

8. There are 2 green party hats and 3 red party hats on a table. Ken randomly selects a party hat from the table. He tries the hat on, and then places it back on the table. He randomly selects another party hat.

a) Draw a tree diagram to represent the possible outcomes.

b) Find the probability that Ken selects 2 red party hats.

c) Find the probability that Ken selects a red party hat after he first selects a green party hat.

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Solve. Show your work.

9. Alice has 1 green bead, 2 red beads, and 3 yellow beads in her bag. She randomly selects a bead from her bag, and replaces it before she randomly selects again.

a) Draw a tree diagram to represent the possible outcomes.

b) Find the probability that she selects 2 red beads.

c) Find the probability that she selects 2 yellow beads.

d) Find the probability she selects 2 beads of different colors.

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Solve. Show your work.

10. A box contains 2 blue cards, 3 red cards, and 5 yellow cards. Tom randomly selects a card from the box, and replaces it before he randomly selects again.

a) Draw a tree diagram to represent the possible outcomes.

b) Find the probability that he selects 2 red cards.

c) Find the probability that he selects a blue card, followed by a yellow card.

d) Find the probability that he selects a yellow card, followed by a red card.

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Solve. Show your work.

11. James has two fair six-sided number dice, one white and one red. He tosses the red die followed by the white die.

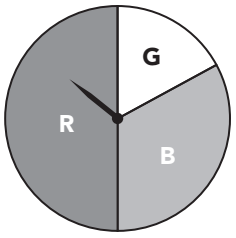
a) Find the probability of tossing an odd number on both dice.

b) Find the probability of tossing an odd number on the red die and an even number on the white die.

c) Find the probability of tossing a number greater than 4 on both dice.

12. The probability of Nancy getting to school on time on any given day, is $\frac{9}{10}$. What is the probability of Nancy getting to school late on at least one of any two consecutive days?

13. A spinner has a 60° green sector, a 120° blue sector, and a 180° red sector. Henry spins the spinner twice.



a) Find the probability that the spinner points to the same color on both spins.

b) Find the probability that the spinner points to the blue sector at least once.

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Solve. Show your work.

14. A game is designed so that a player wins when the game piece lands on or passes the box W. The game piece starts on box S. A fair six-sided number die is tossed. If the number tossed is 1 or 2, the game piece stays put. If the number tossed is 3 or 4, the game piece moves one box to the right. If the number tossed is 5 or 6, the game piece moves two boxes to the right.

S		W		

a) Find the probability that a player will win after tossing the die once.

b) Find the probability that a player will win after tossing the die twice.

15. A target board consists of two concentric circles with radii of 3 inches and 6 inches. Chrissy thinks that the probability of tossing a coin and it landing on the shaded part is $\frac{1}{2}$ since $OA = AB = 3$ inches. Do you agree with her? Explain.