Practice – Independent vs. Dependent Events Name: Key

Provide an example of each type of probability.

1. Independent Event:

2. Dependent Event:

Classify each event as independent or dependent. Explain why.

3. You select a card randomly from a standard deck of 52 cards. Without putting the card back, you select another card from the deck. dependent

4. You pick a piece of candy from a bag containing 20 pieces. You replace the candy to choose a different one and select a second candy. independent

5. You roll a dice and then spin a spinner.

independent

6. You pick a piece of fruit from the fruit bowl, eat it and then pick a second piece.

dependent

7. Choosing a member of the track team to run in the state relay race and then choosing another member to run the mile.

dependent

8. You pick a shoe for your left foot and a shoe for your right foot.

independent

Find the probability of each event and then classify as independent or dependent.

9. You throw a die twice. What is the probability of throwing a number less than four and then a six? independent

$\frac{3}{36} = \frac{1}{12} \approx 8\%$

10. Aiden pulls a King from a deck of regular playing cards. He does not replace the card. What is the probability of pulling out a second King? dependent

$\frac{3}{51} = \frac{1}{17} \approx 6\%$

11. You have a bag of candy filled with pieces which are all the same size and shape. Four are snickers and six are milky ways. You draw a milky way out, decide you don't like it, put it back, and select another piece of candy. What is the probability of selecting another milky way? $\frac{6}{10} = \frac{3}{5} = 60\%$

independent

12. Tyler has a box of blocks with eight alphabet blocks and four plain orange blocks. He gave an alphabet block to his friend. What is the probability his next selection will be another alphabet block?

dependent

$\frac{7}{11} \approx 64\%$

Find the probability of each event.

13. What is the probability of drawing the ACE of diamonds from a deck of cards, putting it back in deck, shuffling the deck, and then drawing the ACE of clubs?

$\frac{1}{52} \cdot \frac{1}{52} = \frac{1}{2704}$

14. You have tiles numbered 1 – 9 in a bag. What is the probability of drawing the number 2, putting it aside, and then drawing the number 5?

$\frac{1}{9} \cdot \frac{1}{8} = \frac{1}{72}$

15. What is the probability of drawing a Jack from a deck of cards, putting it aside, and then drawing another Jack?

$\frac{4}{52} \cdot \frac{3}{51} =$

$\frac{1}{13} \cdot \frac{1}{17} = \frac{1}{221}$

16. What is the probability that a coin will land on heads and then a coin will land on tails?

$\frac{1}{2} \cdot \frac{1}{2} = \frac{1}{4}$

17. What is the probability of rolling a 3 on a 6-sided number cube and then NOT rolling a 3 on a 6-sided number cube?

$\frac{1}{6} \cdot \frac{5}{6} = \frac{5}{36}$

18. A classroom consists of 12 boys and 16 girls. Find the probability that a teacher randomly selects a girl and then a boy.

$\frac{16}{28} \cdot \frac{12}{27} = \frac{1}{3}$

19. You have a bag of 17 skittles. Four are purple, 6 are green, 2 are red, and the others are yellow. What is the probability of drawing a red skittle, eating it, and then drawing a green skittle?

$\frac{2}{17} \cdot \frac{6}{16} = \frac{3}{68}$

20. You have a bag of 17 skittles. Four are purple, 6 are green, 2 are red, and the others are yellow. What is the probability of drawing a purple skittle, replacing it, and then drawing a yellow skittle?

$\frac{4}{17} \cdot \frac{5}{17} = \frac{20}{289}$

21. A test includes several multiple-choice questions, each with 4 choices. Suppose you don't know the answers for three of these questions, so you guess. What is the probability of getting all three correct?

$\frac{1}{4} \cdot \frac{1}{4} \cdot \frac{1}{4} = \frac{1}{64}$

22. There are six apples, five oranges, and one pear in John's basket. His friend takes three pieces of fruit at random without replacement. Determine the probability that *all three* fruits taken are apples.

$\frac{6}{12} \cdot \frac{5}{11} \cdot \frac{4}{10} = \frac{1}{11}$

23. Why would the example of drawing a card from a deck keeping it out and drawing again be an example of a dependent event?

Because the second card drawn's probability depends on what happens with the first action