There are 5 pennies, 7 nickels, and 9 dimes in an antique coin collection. Suppose two coins are to be selected at random from the collection. Find each probability.

10. \( P(\text{selecting 2 pennies}, \text{ if no replacement occurs}) \)
   \[
   \frac{5}{21} \cdot \frac{4}{20} = \frac{1}{21}
   \]

11. \( P(\text{selecting 2 pennies}, \text{ if replacement occurs}) \)
   \[
   \frac{5}{21} \cdot \frac{5}{21} = \frac{25}{441}
   \]

12. \( P(\text{selecting the same coin twice}, \text{ if no replacement occurs}) \)
   \[
   \frac{5}{21} \cdot \frac{4}{20} + \frac{7}{21} \cdot \frac{6}{20} + \frac{9}{21} \cdot \frac{8}{20} = \frac{67}{210}
   \]

Michael is helping his mother do some packing. There are 5 clocks, 5 candles, and 6 picture frames on a table. If Michael accidentally knocks two items off the table and breaks them. Find each probability.

13. \( P(\text{breaking 2 picture frames}) \)
   \[
   \frac{6}{16} \cdot \frac{5}{15} = \frac{1}{8}
   \]

15. \( P(\text{breaking a clock, then a candle}) \)
   \[
   \frac{5}{16} \cdot \frac{5}{15} = \frac{5}{48}
   \]

Two dice are tossed. Find each probability.

17. \( P(\text{no 2's}) \)
   \[
   \frac{5}{6} : \frac{5}{36} = \frac{25}{36}
   \]

19. \( P(\text{two different numbers}) \)
   \[
   1 - \frac{6}{36} = \frac{30}{36} = \frac{5}{6}
   \]

A box contains 5 red markers, 4 black markers, and 7 blue markers. Three are selected, one after the other. Find the probability all three are different colors if:

a. no replacement occurs.
   \[
   \frac{1}{24}
   \]

b. replacement occurs each time
   \[
   \frac{35}{1024}
   \]

For a bingo game, wooden balls numbered consecutively from 1 to 75 are placed in a box. Five balls are drawn randomly. Find each probability.

23. \( P(\text{selecting 5 even numbers}, \text{ if replacement occurs}) \)
   \[
   \frac{37}{75} \cdot \frac{5}{75}
   \]

25. \( P(\text{selecting 5 consecutive numbers}, \text{ if no replacement occurs}) \)
   \[
   \frac{1}{29,170,360} = \frac{71}{75} \cdot \frac{1}{74} \cdot \frac{1}{72} \cdot \frac{1}{71}
   \]

A standard deck of 52 cards contains 4 suits of 13 cards each. Find each probability if 13 cards are drawn and no replacement occurs.

27. \( P(\text{all one suit}) \)
   \[
   \frac{4 \cdot \binom{13}{13}}{\binom{52}{13}}
   \]

29. \( P(\text{all face cards}) \)
   \[
   \binom{12}{13}
   \]