Candle Center - Infinite Algebra 2 Name_____

Independent and Dependent Events

Date_____ Period____

Determine whether the scenario involves independent or dependent events.

1) You flip a coin and then roll a fair six-sided die. The coin lands heads-up and the die shows a one.

2) A bag contains eight red marbles and four blue marbles. You randomly pick a marble and then pick a second marble without returning the marbles to the bag. The first marble is red and the second marble is blue.

3) A box of chocolates contains five milk chocolates, five dark chocolates, and five white chocolates. You randomly select and eat three chocolates. The first piece is milk chocolate, the second is dark chocolate, and the third is white chocolate.

4) A cooler contains ten bottles of sports drink: four lemon-lime flavored, three orange flavored, and three fruit-punch flavored. Three times, you randomly grab a bottle, return the bottle to the cooler, and then mix up the bottles. The first time, you get a lemon-lime drink. The second and third times, you get fruit-punch.

Find the probability.

5) You flip a coin and then roll a fair six-sided die. The coin lands heads-up and the die shows an even number.

6) You roll a fair six-sided die twice. The first roll shows a five and the second roll shows a six.

7) There are eight shirts in your closet, four blue and four green. You randomly select one to wear on Monday and then a different one on Tuesday. You wear blue shirts both days.

8) A basket contains five apples and seven peaches. You randomly select one piece of fruit and eat it. Then you randomly select another piece of fruit. The first piece of fruit is an apple and the second piece is a peach.

Determine if events *A* and *B* are independent.

9) $P(A) = \frac{2}{5}$ $P(B) = \frac{1}{5}$ $P(A \text{ and } B) = \frac{2}{25}$

10) $P(A) = \frac{2}{5}$ $P(B) = \frac{1}{4}$ $P(A \text{ and } B) = \frac{1}{25}$

11) $P(A) = \frac{9}{20}$ $P(B) = \frac{1}{2}$ $P(A|B) = \frac{27}{50}$

12) $P(\text{not } A) = \frac{3}{4}$ $P(B) = \frac{3}{10}$ $P(A \text{ and } B) = \frac{3}{40}$

Events *A* and *B* are independent. Find the missing probability.

13) $P(A) = \frac{1}{4}$ $P(B) = \frac{3}{5}$ $P(B|A) = ?$

14) $P(B) = \frac{9}{20}$ $P(A|B) = \frac{1}{5}$ $P(A) = ?$

15) $P(A) = \frac{3}{10}$ $P(B) = \frac{13}{20}$ $P(A \text{ and } B) = ?$

16) $P(B) = \frac{9}{20}$ $P(A \text{ and } B) = \frac{9}{100}$ $P(A) = ?$

17) $P(A) = \frac{2}{5}$ $P(A \text{ and } B) = \frac{3}{10}$ $P(\text{not } B) = ?$

18) $P(A) = \frac{7}{10}$ $P(A \text{ or } B) = \frac{173}{200}$ $P(B) = ?$

Find the missing probability.

19) $P(B) = \frac{2}{5}$ $P(A \text{ and } B) = \frac{1}{10}$ $P(A|B) = ?$

20) $P(A) = \frac{3}{5}$ $P(B|A) = \frac{3}{10}$ $P(A \text{ and } B) = ?$

21) $P(\text{not } A) = \frac{3}{5}$ $P(A \text{ and } B) = \frac{6}{25}$ $P(B|A) = ?$

22) $P(B) = 0.45$ $P(A \text{ or } B) = 0.72$ $P(B|A) = 0.4$ $P(A) = ?$

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Date_____ Period____

Determine whether the scenario involves independent or dependent events.

1) You flip a coin and then roll a fair six-sided die. The coin lands heads-up and the die shows a one.

Independent

2) A bag contains eight red marbles and four blue marbles. You randomly pick a marble and then pick a second marble without returning the marbles to the bag. The first marble is red and the second marble is blue.

Dependent

3) A box of chocolates contains five milk chocolates, five dark chocolates, and five white chocolates. You randomly select and eat three chocolates. The first piece is milk chocolate, the second is dark chocolate, and the third is white chocolate.

Dependent

4) A cooler contains ten bottles of sports drink: four lemon-lime flavored, three orange flavored, and three fruit-punch flavored. Three times, you randomly grab a bottle, return the bottle to the cooler, and then mix up the bottles. The first time, you get a lemon-lime drink. The second and third times, you get fruit-punch.

Independent

Find the probability.

5) You flip a coin and then roll a fair six-sided die. The coin lands heads-up and the die shows an even number.

$\frac{1}{4} = 0.25$

6) You roll a fair six-sided die twice. The first roll shows a five and the second roll shows a six.

$\frac{1}{36} \approx 0.028$

7) There are eight shirts in your closet, four blue and four green. You randomly select one to wear on Monday and then a different one on Tuesday. You wear blue shirts both days.

$\frac{3}{14} \approx 0.214$

8) A basket contains five apples and seven peaches. You randomly select one piece of fruit and eat it. Then you randomly select another piece of fruit. The first piece of fruit is an apple and the second piece is a peach.

$\frac{35}{132} \approx 0.265$

Determine if events *A* and *B* are independent.

9) $P(A) = \frac{2}{5}$ $P(B) = \frac{1}{5}$ $P(A \text{ and } B) = \frac{2}{25}$

Independent

10) $P(A) = \frac{2}{5}$ $P(B) = \frac{1}{4}$ $P(A \text{ and } B) = \frac{1}{25}$

Dependent

11) $P(A) = \frac{9}{20}$ $P(B) = \frac{1}{2}$ $P(A|B) = \frac{27}{50}$

Dependent

12) $P(\text{not } A) = \frac{3}{4}$ $P(B) = \frac{3}{10}$ $P(A \text{ and } B) = \frac{3}{40}$

Independent

Events *A* and *B* are independent. Find the missing probability.

13) $P(A) = \frac{1}{4}$ $P(B) = \frac{3}{5}$ $P(B|A) = ?$

$\frac{3}{5}$

14) $P(B) = \frac{9}{20}$ $P(A|B) = \frac{1}{5}$ $P(A) = ?$

$\frac{1}{5}$

15) $P(A) = \frac{3}{10}$ $P(B) = \frac{13}{20}$ $P(A \text{ and } B) = ?$

$\frac{39}{200}$

16) $P(B) = \frac{9}{20}$ $P(A \text{ and } B) = \frac{9}{100}$ $P(A) = ?$

$\frac{1}{5}$

17) $P(A) = \frac{2}{5}$ $P(A \text{ and } B) = \frac{3}{10}$ $P(\text{not } B) = ?$

$\frac{1}{4}$

18) $P(A) = \frac{7}{10}$ $P(A \text{ or } B) = \frac{173}{200}$ $P(B) = ?$

$\frac{11}{20}$

Find the missing probability.

19) $P(B) = \frac{2}{5}$ $P(A \text{ and } B) = \frac{1}{10}$ $P(A|B) = ?$

$\frac{1}{4}$

20) $P(A) = \frac{3}{5}$ $P(B|A) = \frac{3}{10}$ $P(A \text{ and } B) = ?$

$\frac{9}{50}$

21) $P(\text{not } A) = \frac{3}{5}$ $P(A \text{ and } B) = \frac{6}{25}$ $P(B|A) = ?$

$\frac{3}{5}$

22) $P(B) = 0.45$ $P(A \text{ or } B) = 0.72$ $P(B|A) = 0.4$ $P(A) = ?$

0.45