Name: Key

12-7 Practice
Probability of Compound Events

16 total

A bag contains 5 red, 3 brown, 6 yellow, and 2 blue marbles. Once a marble is selected, it is not replaced. Dependant **Find each probability.**

1. *P*(brown, then yellow, then red) $\frac{3}{16} \cdot \frac{6}{15} \cdot \frac{5}{14}$ $\frac{3}{112}$

2. *P*(red, then red, then blue) $\frac{5}{16} \cdot \frac{4}{15} \cdot \frac{2}{14}$ $\frac{1}{84}$

3. *P*(yellow, then yellow, then *not* blue) $\frac{6}{16} \cdot \frac{5}{15} \cdot \frac{12}{14}$ $\frac{3}{28}$

4. *P*(brown, then brown, then *not* yellow) $\frac{3}{16} \cdot \frac{2}{15} \cdot \frac{8}{14}$ $\frac{1}{70}$

A die is rolled and a card is drawn from a standard deck of 52 cards. Find each probability. Independant

5. *P*(6 and king) $\frac{1}{6} \cdot \frac{4}{52}$ $\frac{1}{39}$

6. *P*(odd number and black) $\frac{3}{6} \cdot \frac{26}{52}$ $\frac{1}{4}$

7. *P*(less than 3 and heart) $\frac{2}{6} \cdot \frac{13}{52}$ $\frac{1}{12}$

8. *P*(greater than 1 and black ace) $\frac{5}{6} \cdot \frac{2}{52}$ $\frac{5}{156}$

A card is being drawn from a standard deck of playing cards. Determine whether the events are *mutually exclusive* or *not* mutually exclusive. Then find the probability.

9. *P*(spade or numbered card) NME $\frac{13}{52} + \frac{36}{52} - \frac{9}{52}$ $\frac{10}{13}$

10. *P*(ace or red queen) ME $\frac{4}{52} + \frac{2}{52}$ $\frac{3}{26}$

11. *P*(red or *not* face card) NME $\frac{26}{52} + \frac{36}{52} - \frac{18}{52}$ $\frac{11}{13}$

12. *P*(heart or *not* queen) NME $\frac{13}{52} + \frac{48}{52} - \frac{12}{52}$ $\frac{49}{52}$

Box 1: 1-25 (25 total) Box 2: 11-30 (20 total)

Tiles numbered 1 through 25 are placed in a box. Tiles numbered 11 through 30 are placed in a second box. The first tile is randomly drawn from the first box. The second tile is randomly drawn from the second box. Find each probability.

13. *P*(both are greater than 15 and less than 20) Ind Dependent $\frac{4}{25} \cdot \frac{4}{20}$ $\frac{4}{125}$

14. The first tile is greater than 10 and the second tile is less than 25 or even. Independ + NME $\frac{15}{25} \cdot \left(\frac{14}{20} + \frac{10}{20} - \frac{7}{20}\right)$ $\frac{51}{100}$

15. The first tile is a multiple of 3 or prime and the second tile is a multiple of 5. NME Indep $\left(\frac{8}{25} + \frac{9}{25} - \frac{1}{25}\right) \cdot \frac{4}{20}$ $\frac{16}{125}$

16. The first tile is less than 9 or odd and the second tile is a multiple of 4 or less than 21 $\left(\frac{8}{25} + \frac{13}{25} - \frac{4}{25}\right) \cdot \left(\frac{5}{20} + \frac{10}{20} - \frac{3}{20}\right)$ $\frac{51}{125}$

17. The forecast predicts a 40% chance of rain on Tuesday and a 60% chance on Wednesday. If these probabilities are independent, what is the chance that it will rain on both days?

$(.4)(.6) = .24$ 24%

18. Inigo places favorite recipes in a bag for 4 pasta dishes, 5 casseroles, 3 types of chili, and 8 desserts. 20 total

a. If Inigo chooses one recipe at random, what is the probability that he selects a pasta dish or a casserole? $\frac{4}{20} + \frac{5}{20}$ $\frac{9}{20}$

b. If Inigo chooses one recipe at random, what is the probability that he does *not* select a dessert? $\frac{12}{20}$ $\frac{3}{5}$

c. If Inigo chooses two recipes at random without replacement, what is the probability that the first recipe he selects is a casserole and the second recipe he selects is a dessert? $\frac{5}{20} \cdot \frac{8}{19}$ $\frac{2}{19}$