DATA ANALYSIS (DAY 5) NOTES

VOCABULARY

Independent Events (an example of a compound event) two events occur if one event does not affect the occurrence P(A and B) = P(A)-P(B)

of the other

Dependent Events (an example of a compound event)

Definition:
two events occur if one event
does affect the occurrence

P(A and B) = P(A) · P(B,
assuming A
occurred) TWO OTHER.

EXAMPLES

Decide whether the events are independent or dependent.

1. Each whole number from 1 through 10 is written on a piece of paper and placed in a hat. You randomly choose a piece of paper, do not put it back, then randomly choose another piece of paper.

EVENT A: Choose the 5 first.

EVENT B: Choose an odd number second.

Dependent events

2. You flip a coin and roll a number cube.

EVENT A: Get tails when flipping the coin.

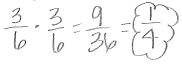
EVENT B: Get a 2 when rolling the number cube.

Independent events

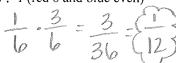
You roll a red number cube and a blue number cube. Find each probability. SM

- **3**. *P*(red 2 and blue 2)
- **4.** *P*(red odd and blue even)
- **5**. *P*(red greater than 2 and red 4)

6. *P*(red odd and blue less than 4)



7. P(red 6 and blue even)



8. *P*(red greater than 4 and blue greater than 3)

 $\frac{2}{10} \cdot \frac{3}{10} = \frac{10}{310} = \frac{1}{310} = \frac{1}{$

You choose a marble at random from a bag containing 3 blue marbles, 5 red marbles, and 2 green marbles. You replace the marble and then choose again. Find each probability.

9. P(both blue)
3.3 593
10 10 (100)

10.
$$P(\text{both red})$$

$$\frac{5}{10} \cdot \frac{5}{10} = \frac{25}{100} =$$

11.
$$P(\text{blue then green})$$

$$\frac{3}{10} \cdot \frac{2}{10} = \frac{6}{100} = \frac{3}{50}$$

12.
$$P(\text{red then blue})$$

$$\frac{5}{10} \cdot \frac{3}{10} = \frac{15}{100} = \frac{3}{20}$$

13.
$$P(\text{green then red})$$

$$\frac{2}{10} \cdot \frac{5}{10} = \frac{10}{100} = \frac{2}{100}$$

14.
$$P(both green)$$
 $\frac{2}{10} \cdot \frac{2}{10} = \frac{4}{100} \cdot \frac{2}{25}$

You choose a tile at random from a bag containing 2 tiles with X, 6 tiles with Y, and 4 tiles with Z. You pick a second tile without replacing the first. Find each probability.



15. $P(X \text{ then } Y)$ $\frac{2}{12} \cdot \frac{6}{11} = \frac{12}{132} \cdot \frac{1}{132}$	16. P(both Y) 6. 5 - 30 12 11 132 22	17. $P(Y \text{ then } X)$ $\frac{6}{12} \cdot \frac{2}{11} = \frac{12}{132} = \frac{2}{11}$
18. P(Z then X)	19. <i>P</i> (both <i>Z</i>)	20. <i>P</i> (Y then Z)
$\frac{4}{12} \cdot \frac{2}{11} = \frac{4}{132} \cdot \frac{23}{33}$	$\frac{4}{12}$, $\frac{3}{11} = \frac{12}{132} = \frac{13}{13}$	岩.并= 岩泉

21. There are 12 girls and 14 boys in math class. The teacher puts the names of the students in a hat and randomly picks one name. Then the teacher picks another name without replacing the first. What is the probability that both students picked are boys?