

# **THE CHANCE OF WINNING**

**PROBABILITY TEST 12 REVIEW**

# QUESTION 1

Write the appropriate formulas.

- Mutually exclusive events:

$$P(A \text{ or } B) =$$

- Overlapping events:

$$P(A \text{ or } B) =$$

# QUESTION 2

Write the appropriate formulas.

- Independent events:

$$P(A \text{ and } B) =$$

# QUESTION 3

You are out for lunch at a local deli and can decide between 4 sandwich options or 5 soup options. How many lunch options do you have?

# QUESTION 4

You would like to go to a movie, a play, or the zoo. You can go with your cousin, your brother, or your friend. You can go on Friday, Saturday, or Sunday. How many different options do you have?

# QUESTION 5

You randomly choose a card from a standard deck of 52 playing cards.

- Find the probability that you choose a Queen or an Ace.
- Find the probability that you choose a King or a club.

# QUESTION 6

An aquarium contains 6 male goldfish and 4 female goldfish. You randomly select a fish from the tank, do not replace it, and then randomly select a second fish.

- What is the probability that both fish are male?

# QUESTION 7

A Baltimore detective is suspicious about 5 deaths that were determined to be accidental. If a death is selected at random, there is a .0478 probability that it was caused by an accident. Find the probability that 5 randomly selected deaths were all accidental.



# QUESTIONS 8 – 11

A random sample of 100 adults were surveyed. They were asked if they regularly watch *Survivor*. They were also asked if their favorite person won *Survivor*. The results follow. Use the results to answers questions 8 – 11.

	<b>Favorite won</b>	<b>Favorite did not win</b>	<b>Row total</b>
<b>Watch Survivor</b>	27	48	<b>75</b>
<b>Do not watch Survivor</b>	8	17	<b>25</b>
<b>Column total</b>	<b>35</b>	<b>65</b>	<b>100</b>

# QUESTION 8

For a person selected at random from the sample:

- Find  $P(\text{favorite person won } \textit{Survivor})$

# QUESTION 9

For a person selected at random from the sample:

- Find  $P(\text{watch } \textit{Survivor} \text{ and favorite person won})$

# QUESTION 10

For a person selected at random from the sample:

- Find  $P(\text{watch } \textit{Survivor} \mid \text{favorite person won})$

# QUESTION 11

For a person selected at random from the sample:

- Find  $P(\text{favorite person won or don't watch } \textit{Survivor})$

# QUESTION 12

A box of parts contains 8 good items and 2 defective items. If 2 are selected at random with replacement, find the probability that one is defective and the other isn't.

# QUESTION 13

A box of parts contains 8 good items and 2 defective ones. If 2 are selected at random without replacement, find the probability that one is defective and the other isn't.

# QUESTION 14

A study of consumer smoking habits includes 200 married people (54 of whom smoke), 100 divorced people (38 of whom smoke), and 50 adults who never married (11 of whom smoke).

- Construct a table to organize the data.

If 1 subject is randomly selected from this sample, find the probability of getting someone who is divorced or smokes.



# QUESTION 15

Of the 10,000 students at a certain university, 7000 have a Visa card, 6000 have a MasterCard, and 5000 have both. Suppose that a student is randomly selected.

- Draw a Venn Diagram.

# QUESTION 16

Use the information in your Venn Diagram to answer the following questions.

- What is the probability that the selected student has a Visa card?
  - What is the probability that the selected student has both cards?
- Suppose you learn that the selected individual has a Visa card. What is the probability that this student has both cards?

# QUESTION 17

If  $P(A) = 0.33$ , what is  $P(\text{not } A)$ ?

# ANSWERS

*Check your answers!*

1 – 2: see notes or textbook

3. 9

4. 27

5.  $2/13, 4/13$

6.  $1/3$

7. 0.0000002

8. 0.35

9. 0.27

10.  $27/35 = 0.771$

11. 0.52

12. 0.32

13. 0.356

14. 0.471

15. 2000 – Visa only,  
1000 – MC only

16. 0.7, 0.5, 0.714

17. 0.67