Accelerated Geometry

Name __Answer Key__

Sets and Basic Probability Review

Date _____ Period _____

Aubree has a bag of marbles. She removed one marble, recorded the color and then placed it back in the back. She repeated this process several times and recorded her results in the table.

Color	Frequency
Red	12
Blue	10
Green	15
Yellow	13
	50

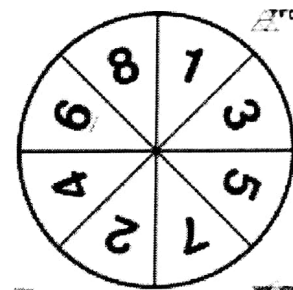1) Find the experimental probability of getting a red marble.

$12/50 = \boxed{6/25}$

2) Find the experimental probability of getting a red or blue marble.

$22/50 = \boxed{11/25}$

3) Find the experimental probability of not getting a green marble.

$35/50 = \boxed{7/10}$

A spinner is equally divided into 8 sections. Each section has a number from 1 to 8.

4) What is the theoretical probability landing on a 5?

$\boxed{1/8}$

5) What is the theoretical probability that it will land on a prime number?

$4/8 = \boxed{1/2}$ 1 is NOT prime

6) What is the probability that it will land on a number divisible by 4?

$2/8 = \boxed{1/4}$

8) What is the probability that it will land on a number divisible by 2?

$4/8 = \boxed{1/2}$

9) What is the probability that it will land on a number greater than 7? $\boxed{1/8}$

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10) Eli must choose a password for his bank account that consists of 4 letters followed by 3 digits. He cannot use the letters A, B, C, or D and he cannot use the numbers 0 or 2. Each letter may be used more than once and digits may not be repeated. How many possible passwords are there? What is the probability that someone guesses his password?

$22 \cdot 22 \cdot 22 \cdot 22 \cdot 8 \cdot 7 \cdot 6 = \boxed{78,710,016 \text{ Passwords}}$

$\boxed{P = \frac{1}{78710016}}$

11) If you roll two number cubes at the same time, what is the probability that you will roll a product that is
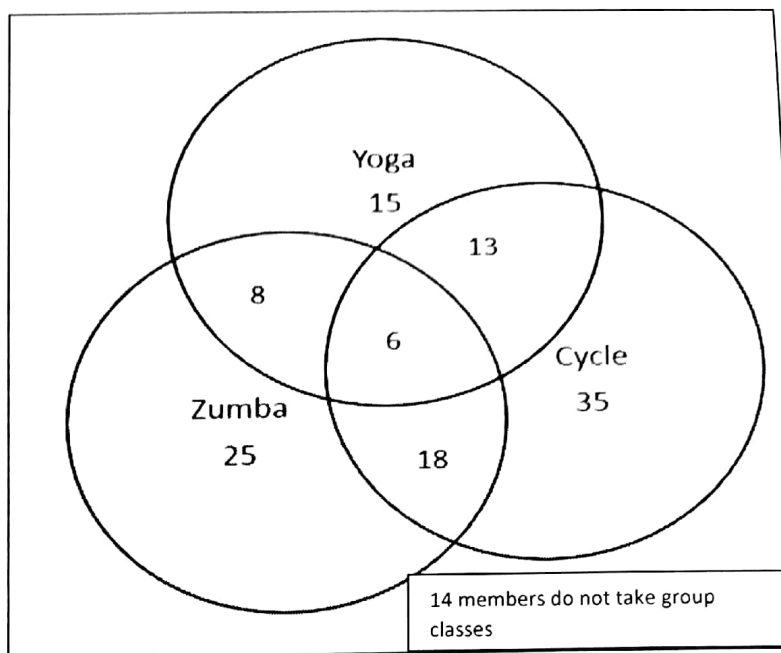
a) less than 12 $\boxed{19/36}$

b) divisible by 5 $\boxed{11/36}$

c) more than 25

$3/36 = \boxed{1/12}$

	1	2	3	4	5	6
1	1	2	3	4	5	6
2	2	4	6	8	10	12
3	3	6	9	12	15	18
4	4	8	12	16	20	24
5	5	10	15	20	25	30
6	6	12	18	24	30	36

Lifetime Fitness offers three group classes, the Fitness club is trying to determine the best time to offer the group fitness classes. Use the following Venn Diagram to answer the following questions.

How many members

12. Were surveyed? **134**

13. How many members attend the yoga classes? **42**

14. How many members attend cycle or Zumba? **105**

15. How many members attended cycle and Zumba? **24**

16. How many members attend Zumba classes but not cycle? **33**

17. How many members attend Zumba or Yoga but do not attend cycle? **48**

Yoga 15

13

8

6

Cycle 35

Zumba 25

18

14 members do not take group classes

18. How many members that attend a group class do not attend Zumba? **63**

19. How many members attend Yoga and Cycle? **19**

20. How many members attend Yoga or Cycle? **95**

1. A dice is rolled twice, what is the probability of getting an even number both times?

$\frac{1}{2} \cdot \frac{1}{2} =$ **$\frac{1}{4}$**

2. If a coin is flipped 180 times, how many times would you predict that the coin lands on tails?

$\frac{1}{2}(180) =$ **90**

3. If a six-sided die is rolled 865 times, how many times would you predict a roll of an even number?

$\frac{1}{2}(865) =$ **432.5**

24) *Universal Set*: $\{a, b, c, d, e, f, g, h, i, j, k\}$, $A = \{a, c, f\}$, $B = \{a, b, c, d, i, j, k\}$.

a) $A \cap B$

$\{a, c\}$

b) $A \cup B$

$\{a, c, f, b, d, i, j, k\}$

c) $(A \cap B)'$

$\{b, d, e, f, g, h, i, j, k\}$