Probability Test Review Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Period \_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**1.** Out of 140 HS teachers, 50 go to the gym regularly, and 17 are Math teachers.
5 of the Math teachers go to the gym regularly. How many HS teachers teach Math or go to the gym regularly? (*Hint:* A Venn diagram might help by drawing it below)



 d.What is the probability of teachers that teach Math but *do not* go to the gym?

 e. What is the probability of teachers who *neither* teach Math *nor* go to the gym?

**2.** On this season of *Make Me a Superstar*, there are 16 contestants. 7 contestants are female, 5 contestants are blond, and 2 of the female contestants are blond.

male

blond

1. Complete the Venn Diagram shown by writing

how many contestants are in each group.

 **b.** How many female contestants are there?

 **c.** P(blond  females)?

 **d.** How many contestants are neither female nor blond?

 **e.** P(female  blond’)?

 **FOR THIS ENTIRE SECTION, USE THE FOLLOWING INFORMATION:**

**You have a box with ten blue cards numbered 1 through 10, ten red cards numbered 1 through 10, ten yellow cards numbered 1 through 10, and ten green cards numbered 1 through 10.**

**3.** You randomly pick one card from the box

 **a.** *Event A: Get blue. Event B: Get a number greater than 6.*

 **➀** Are events A and B mutually exclusive? Explain.

 **➁** P(A *and* B) = **➂** P(A *or* B) =

 **b.** *C: Get a yellow. D: Get red.*

 **➀** Are events C and D mutually exclusive? Explain.

 **➁** P(C *and* D) = **➂** P(C *or* D) =

**4.** Imagine drawing two cards from the box, one after the other.

 **a.** *You replace the card between draws.*
*A: Get a ten on the first draw. B: Get a nine on the second draw.*

**➀** Are events A and B independent or dependent? Explain.

 **➁** P(A *and* B) =

 **b.** *You do not replace the card between draws.*

 *C: Get a ten on the first draw. D: Get a nine on the second draw.*

**➀** Are events C and D independent or dependent? Explain.

 **➁** P(C *and* D) =

**5.** You randomly draw a card. What is the probability…

 **a.** it is red? **b.** it is less than 3?

 **c.** it is either green or an 8? **d.** it is green and greater than 8?

 **e.** it is blue or less than 8? **f.** it is blue’ and it’s less than 8?

Complete the **two-way frequency table**.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Dogs** | **Cats** | **Fish** | **Total** |
| **Male students** | *6* |  | *4* | *14* |
| **Female students** |  | *10* |  |  |
| **Total** | *11* |  | *5* |  |

6. How many total students took the survey? Is this a joint or marginal frequency?

7. How many female students are in the class? How many male students are in the class? What kind of frequencies are these?

Female: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Male: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Type of Frequencies: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

8. Who likes dogs more than cats, male students or female students? Are you comparing the joint or marginal frequencies?

9. What is the **probability** that a student surveyed was a male student who like dogs?

10. Find the **probability** that a student surveyed was a female.

11. Percentage (cats)?

12. P(female  fish)?

13. Out of all the students surveyed, what **percent** of them are females who like dogs?

14. Given that a female is chosen, what is the **probability** she preferred cats as pets?

15. What **percent** of male students preferred dogs for pets?

16. P(male | dogs)?

17. What is the **probability** that a person chosen is a female that prefers fish?

18. What is the **probability** that a person chosen is female, given that they prefer fish as a pet?

19. What is the **probability** that a person chosen prefers fish, given that the person is female?

20. P(dogs | female)?

21. What is the **probability** that a student surveyed is male?

Probability Review Key

**1. a.** 30

 **b.** 6

**2. a.** 62

 **b.** 12

 **c.** 78

**3. a.** **➀** no (**explain**)

 **➁** 4/40 or 1/10

 **➂** 22/40 or 11/20

 **b.** **➀** yes (**explain**)

 **➁** 0

 **➂** 20/40 or 1/2

**4. a.** **➀** independent (**explain**)

 **➁** 16/1600 or 1/100

 **b.** **➀** dependent (**explain**)

 **➁** 16/1560 or 2/195

**5. a.** 10/40 or 1/4

 **b.** 8/40 or 1/5

 **c.** 13/40
or anything that equals 0.325

\*If you had a WRONG answer of 14/40, you forgot about the OVERLAP of the “green 8” card!

 **d.** 2/40 or 1/20

 **e.** 7/40

 **f.** 21/40

**6. a.** Careful! The TOTAL in the male circle should be 7, and the TOTAL in the blond circle should be 5. Start in the intersection (the middle), then fill in the rest.

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 **b.** non-male: 9

 **c.** blond but not male: 3

 **d.** male but not blond: 5

 **e.** not male and not blond: 6