

Name \_\_\_\_\_

Course: \_\_\_\_\_

## Homework #5: Single Event Probability

One of these names is to be drawn from a hat. Determine each probability below:

Mary Jenny Bob Marilyn Bill Jack Jerry Tina Connie Joe

1. P(3-letter name) = \_\_\_\_\_

2. P(4-letter name) = \_\_\_\_\_

3. P(name starting with B) = \_\_\_\_\_

4. P(name starting with T) = \_\_\_\_\_

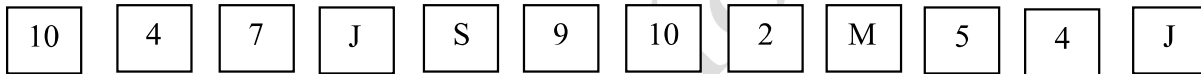
5. P(7-letter name) = \_\_\_\_\_

6. P(name starting with S) = \_\_\_\_\_

7. P(name ending with Y) = \_\_\_\_\_

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One of these cards will be drawn without looking.



8.  $P(2) = \frac{1}{12} \frac{\text{number of twos}}{\text{total number of cards}}$

9. P(5) = \_\_\_\_\_

10. P(J) = \_\_\_\_\_

11. P(a number) = \_\_\_\_\_

12. P(4) = \_\_\_\_\_

13. P(T) = \_\_\_\_\_

14. P(a letter) = \_\_\_\_\_

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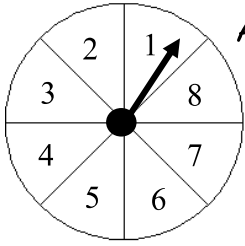
One card is drawn from a well-shuffled deck of 52 cards. What is the probability of drawing...

15. P(ace) = \_\_\_\_\_

16. P(face card - K, J, Q) = \_\_\_\_\_

17. P(a red 10) = \_\_\_\_\_

18. P(NOT a diamond) = \_\_\_\_\_



A spinner, numbered 1-8, is spun once. What is the probability of spinning...

19. an EVEN number? \_\_\_\_\_ 20. a multiple of 3? \_\_\_\_\_  
21. a PRIME number? \_\_\_\_\_ 22. 9? \_\_\_\_\_

For any event  $A$ ,  $P(A) + P(A') =$  \_\_\_\_\_, that is  $P(A') =$  \_\_\_\_\_ -  $P(A)$ .

23. Suppose that an event  $A$  has probability of  $\frac{3}{8}$ . What is  $P(A')$ ? \_\_\_\_\_  
24. Suppose that the probability of snow is 0.58, What is the probability that it will NOT snow? \_\_\_\_\_

If  $A$  and  $B$  are mutually exclusive events, then  $P(A \text{ or } B) = P(A) + P(B)$ .  
and  
If  $A$  and  $B$  are inclusive events, then  $P(A \text{ or } B) = P(A) + P(B) - P(A \cap B)$ .

A card is chosen from a well-shuffled deck of 52 cards.

What is the probability that the card will be:

25. a king OR a queen? \_\_\_\_\_  
26. a red jack OR a black king? \_\_\_\_\_  
27. a face card OR a card with a prime number? \_\_\_\_\_  
28. an even card OR a red card? \_\_\_\_\_  
29. a spade or a jack? \_\_\_\_\_

30. Look at the solution to the following problem and see if you can find the error (there definitely is a mistake). Correct the error to find the right answer.

$$P(\text{drawing an ace OR a black card}) = P(\text{ace}) + P(\text{black}) = \frac{4}{52} + \frac{26}{52} = \frac{30}{52} = \frac{15}{26}$$

**MULTIPLE CHOICE:**

31. A coin is tossed and a die with numbers 1-6 is rolled. What is  $P(\text{heads and } 3)$ ?

- a.  $\frac{1}{12}$                       b.  $\frac{1}{4}$                               c.  $\frac{1}{3}$                               d.  $\frac{2}{3}$

32. Two cards are selected from a deck of cards numbered 1 - 10. Once a card is selected, it is not replaced. What is  $P(\text{two even numbers})$ ?

- a.  $\frac{1}{4}$                               b.  $\frac{2}{9}$                               c.  $\frac{1}{2}$                               d. 1

33. A club has 25 members, 20 boys and 5 girls. Two members are selected at random to serve as president and vice president. What is the probability that both will be girls?

- a.  $\frac{1}{5}$                               b.  $\frac{1}{25}$                               c.  $\frac{1}{30}$                               d.  $\frac{1}{4}$

34. One marble is randomly drawn and then replaced from a jar containing two white marbles and one black marble. A second marble is drawn. What is the probability of drawing a white and then a black?

- a.  $\frac{1}{3}$                               b.  $\frac{2}{9}$                               c.  $\frac{3}{8}$                               d.  $\frac{1}{6}$