**Given the sample space S = {1, 2, 3, 4, 5, 6, 7, 8, 9} with event A = {2, 4, 6, 8} and event B = {1, 2, 3, 4, 5}.**

1. Draw a Venn diagram.



2. List all the outcomes for $A ∪ B$.

3. List all the outcomes for $A ∩ B$.

4. List all the outcomes for Bc.

**The sample space S = {Blue, Yellow, Red, Purple, Green, Orange, Black, White} with event P={Red, Yellow, Blue} and event M = { Purple, Green, Orange, Black, Red}.**

5. Draw a Venn diagram .

6. List all the outcomes for $P ∪ M$.

7. List all the outcomes for $P ∩ M$.

8. List all the outcomes for Mc.

9. What is $M ∩ M^{c}$?

10. What is ~P?

**Let A, B and C be three sets such that: Set A = {2, 4, 6, 8, 10, 12}, set B = {3, 6, 9, 12, 15} and set C = {1, 4,** 7, 10, 13, 16}.

 11. What is A ∪ B

 12. What is A ∩ B

 13. What is B ∩ A

 14. What is B ∪ A

15. What is B ∪ C?

16. Is A ∪ B = B ∪ A?

17. Is B ∩ C = B ∪ C

**18. Shade the area on the Venn Diagram that represents the given event.**



**You have an equally likely chance of choosing an integer from 1 to 50. Find the probability of each of the following events.**

19. An even number 20. A perfect square 21. A two digit is chosen

22. A multiple of 4 is chosen 23. A number less than 35 is chosen

**You randomly chose two marbles, replacing the first marble before drawing again, from a bag containing 10 black, 8 red, 4 white, and 6 blue marbles. Find the probability of each of the following events.**

24. A white marble, then a red marble is selected. 26. A red marble is not selected, then a blue marble is selected.

25. A green marble, then a green marble is selected. 27. A blue or black marble is selected, then a white marble is selected.

**Drawing a card from the cards on the left, determine the probability of each of the following.**

28. P(Even $∪$ shaded)

29. P(White $∪$ odd)

30. P(Less than four $∪$ shaded)

31. P(Greater than five $∪$ shaded)

32. P(Factor of ten $∪$ white)

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 **Using the Venn diagram, answer the following questions.**

33. P(girls)

34. P(~sports)

35. P(girls $∩$ sports)

36. P(sports $∪$ girls)

37. P(sports)

**Find the marginal total. Then use the table to find the probabilities below.**

20. $P\left(male\right)$ 21. $P(browne hair ∩not male)$ 22. $P\left(other hair\right)$

38. $P(blonde hair∩male)$ 39. $P(black hair and female)$ 40. $P\left(red hair\right)$

41. $P(female ∩not other hair)$ 42. $P(not female ∩not male)$