MATH M118 Test Chapter 3 Name: _____ ID: _____

1. Evaluate: $4! + 2 \cdot 3$

1. _____

2. Evaluate: $P(8,3)$

2. _____

3. Evaluate: $C(4,2) + C(5,0)$

3. _____

4. How many words can be formed using all of the letters in the word ***ANNUAL*** ?

4. _____

5. How many ways can 12 people be seated around a circular table?

5. _____

6. How many 4 digit radio and television station call letters can be formed using the letters of the alphabet where ***W*** or ***K*** must be the first letter?

6. _____

7. A gym class has 10 boys and 12 girls. How many ways can a team of 6 be selected?

7. _____

8. A gym class has 10 boys and 12 girls. How many ways can a team of 6 be selected, if the same number of boys and the same number of girls must be selected?

8. _____

9. A gym class has 10 boys and 12 girls. How many ways can a team of 6 be selected, if there must be at least 1 boy and at least one girl selected?

9. _____

10. How many handshakes will be made at a party with 12 people?

10. _____

11. How many even numbers between 300 and 800 can be formed using the elements from the set {1, 3, 4, 5, 6, 9} if no elements can be used more than once in any one number?

11. _____

12. How many ways can a teacher pair into groups of 2 her 20 students?

12. _____

13. An experiment consists of flipping a coin 4 times and noting heads or tails on each flip. How many outcomes exist for this experiment?

13. _____

14. Five cards are selected from a deck of 52. How many ways can 4 aces and 1 king be selected?

14. _____

15. There are 10 choices of toppings for a pizza. If a pizza must have at least one topping, how many ways can a pizza be ordered?

15. _____

16. A lottery to give away 4 television sets has 20 people enter. how many ways can the televisions be awarded?

16. _____

17. A committee of 4 is selected from 8 men and 6 women. If at least 3 women must be on this committee, how many ways can the committee be formed?

17. _____

18. The Supreme Court has 12 members. How many ways can an 8 to 4 decision be rendered?

18. _____

19. How many ways can 12 subjects be divided into 4 equal sized groups for a medical study, where each group receives a different treatment?

19. _____

20. If each post office has its own 5 digit zip code that cannot start with a 9, and must end with a 0, then how many such numbers can be formed?

20. _____

21. How many ways can a president, secretary and treasurer be selected from a group of 15 people?

21. _____

22. How many ways can 8 men and 7 women be seated in a row of 15 seats?

22. _____

23. How many ways can 8 men and 7 women be seated in a row of 15 seats, if any 2 men cannot sit next to each other?

23. _____

24. A set contains 6 elements. How many subsets exist?

24. _____

25. Draw a tree diagram for this experiment. An urn contains 1 red, 1 white, and 2 blue balls. Balls are selected without replacement and the color noted until the red ball is selected.