Secondary 2 Math   Name_____
9-3 Combinations   Period_____

1.Describe the difference between a combination and a permutation.

Find the value of each expression:

2. $_7C_4$ 3. $_8C_4$ 4. $_{10}C_7$ 5. $_9C_5$ 6. $_9C_1$

7. $_{11}C_1$ 8. $_{15}C_{15}$ 9. $_5C_0$ 10. $_8C_6$ 11. $_6C_1$

12. $_7C_0$ 13. $_5C_4$ 14. $_3C_2$ 15. $_3C_3$

Determine if the situation involves a permutation or a combination:

16. Four recipes were selected for publication and 302 recipes were submitted.

17. Four out of 200 contestants were awarded prizes of $100, $75, $50, and $25.

18. A president and a vice-president are elected for a class of 210 students.

19. The batting order for 9 starting players on the baseball team is announced.

Use a combination or a permutation to answer each question:

20. How many ways are there to choose a committee of 3 from a group of 12 people?

21. Find the number of ways to choose a chairperson, secretary, and treasurer from a group of 12 people.

22. Find the number of ways to rent 4 comedies from a collection of 9 comedy DVDs.

23. How many different 12 member juries can be chosen from a pool of 32 people?

24. Find the number of different 5-card hands that can be dealt from a standard deck of 52 playing cards.

Find the probabilities using combinations:

25. A bag contains 5 white marbles and 3 green marbles. Find the probability of selecting 1 green and 1 white marble.

26. Find the probability of drawing 4 kings and a queen from a standard deck of 52 playing cards.

27. A bag contains 5 white marbles and 3 green marbles. Find the probability of selecting 3 green and 2 white marbles.

28. In a survey of 30 people, 25 opposed a tax increase and 5 favored it. Find the probability that in a random sample of 8 respondents, exactly 6 opposed and exactly 2 favored the tax increase.

Answer Key:

3. 70

5. 126

7. 11

9. 1

11. 6

13. 5

15. 1

17. Permutation

19. Permutation

21. 1320

23. 225792840

25. $\dfrac{15}{28}$

27. $\dfrac{5}{28}$