Name: _____ Period: _____

Homework 9-1
Fundamental Counting Principle & Probability

Unit 9

1. A junior high student has 5 pants (red, blue, green, yellow, orange), and 3 shirts (white, cream, tan). All these clothes can be mixed and matched with one another.

Draw a tree diagram to find all possible combinations.

2. A movie theater sells 4 sizes of popcorn (small, medium, large, and jumbo) with 3 choices of toppings (no butter, butter, extra butter). How many possible ways can a bag of popcorn be purchased?

3. Suppose a certain state's license plate has two letters followed by 4 numbers. How many different license plates (letter/number combinations) can be made?

First Letter Second Letter First Number Second Number Third Number Fourth Number

_____ _____ _____ _____ _____ _____

4. How many different 7-digit telephone numbers can be assigned if the first digit <u>cannot</u> be either a "1" or a "0"?

_____ _____ _____ _____ _____ _____ _____

Find each probability for one roll of a die. Write your answer as a simplified fraction.

5. P(2)

6. P(8)

7. P(not 4, 5, or 6)

8. P(1 or 3)

A set of 12 cards is numbered 1, 2, 3, … , 12. Suppose you pick a card at random without looking. Find the probability of each event. Write as a fraction in simplest form.

9. P(5)

10. P(6 or 8)

11. P(a multiple of 3)

12. P(an even number)

13. P(a multiple of 4)

14. P(less than or equal to 8)

15. P(a factor of 12)

16. P(not a multiple of 4)

17. P(1,3, or 11)

18. P(a multiple of 5)

40 students at Jon's High School were surveyed to determine their favorite foods. The results are shown in the table to the right. Suppose students were randomly selected and asked what their favorite food is. Find the probability of each event. Write as a fraction in simplest form.

Favorite Food	Responses
Pizza	19
Steak	8
Chow Mein	5
Seafood	4
Spaghetti	3
Cereal	1

19. P(steak)

20. P(spaghetti)

21. P(cereal or seafood)

22. P(not chow mein)

23. P(pizza)

24. P(cereal or steak)

25. P(not steak**)**

26. P(not cereal or seafood)

27. P(chicken)

28. P(chow mein or spaghetti)