**FOM 12: Chapter 4 Assignment 1** Due at the end of class **Name**:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Mark:\_\_\_\_\_\_\_\_\_\_\_\_/19

1. A band sells shirts and CDs at their concerts. They have 3 CDs and there are 4 different styles of shirt available in small, medium, large, and extra large. How many ways could someone buy two different CDs and a shirt?

Ans)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. A combination lock opens with the correct three-letter code. Each wheel rotates through the letters A to O. How many different three-letter codes are possible?

Ans)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. The numbers 1 to 20 are written on slips of paper and put in a hat. How many possible ways can you draw a either a prime number or a multiple of 6 from the hat?

Ans)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Evaluate

$\frac{8!}{6!}-2!$ $\left(\frac{10!}{2! 8!}\right)$ $\frac{10!}{3!∙2!∙2!∙2!}$

Ans)\_\_\_\_\_\_\_\_\_ Ans)\_\_\_\_\_\_\_\_\_\_\_ Ans)\_\_\_\_\_\_\_\_\_\_\_

1. Solve for n, where n is integer

 $\frac{(n-1)!}{(n-2)!}=12$

Ans)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Solve for n,

$$\_{2}=90$$

Ans)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. How many different arrangements can be made using all the letters in VANCOUVER?

Ans)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. How many different routes are there from A to B, if you only travel south or east?

 Ans)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Ans)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. A true-false test has ten questions. How many different permutations of answers can the teacher create if six answers are true and four answers are false?

Ans)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. A combination lock with is opened with three-letter code. Each wheel rotates through the letters A to T.

**a)** Suppose each letter can be used only once in a code. How many different codes are possible when repetition is not allowed?

**b)** How many more codes would there be if repetition is allowed?

a)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

b)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. At a used car lot, 5 different car models are to be parked close to the street for easy viewing. The lot has 4 red cars and 6 silver cars for the display. How many ways can the 5 cars be parked, if 2 red cars must be parked at either end of a row of 3 silver cars? Show your work.

Ans)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Kathy stacks 13 coins: 3 identical pennies, 4 identical nickels, 4 identical quarters, and 2 identical dimes. How many different ways can Kathy stack the coins in a single tower in each situation below.

**a)** There are no conditions.

**b)** There must be a quarter on top and a quarter on the bottom.

a)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

b)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Euchre is played with a deck of 24 cards that is similar to a standard deck of 52 playing cards, but with only the ace, 9, 10, jack, queen, and king for all four suits.

Count the number of possibilities of drawing a single card from a euchre deck and getting:

**a)** either a jack or a red ace

**b)** either a number card (9 or 10) or a heart

a)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

b)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_