**Math 3201**  Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Unit 2 Test – Counting Methods** November 2013

Formulae:

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**Part 1: Multiple Choice (10 marks)**

Circle the correct answer for each question below.

1. Samantha is choosing an outfit to wear to the dance. She has 3 different tops, 4 different pants and 2 different pairs of shoes to choose from. How many different outfits could she make from this selection of clothes?

A) 9

B) 12

C) 14

D) 24

1. Simplify: 

A) 

B) 

C) 

D) 

1. How many ways can 8 friends stand in a row for a photograph if Molly, Krysta and Simone always stand together?
2. 1440
3. 2160
4. 4320
5. 5040
6. Suppose a word is any string of letters. How many three-letter words can you make from the letters in REGINA if you do not repeat any letters in the word?
7. 16
8. 20
9. 120
10. 216
11. How many different arrangements can be made using all the letters in NUNAVUT?
12. 630
13. 1260
14. 2520
15. 5040
16. The student council has 10 members, 6 girls and 4 boys. A dance committee is to be formed consisting of exactly two girls and two boys. Which calculation could be used to determine the number of different ways this committee could be formed?

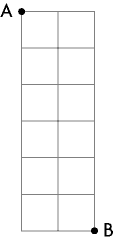
A) 

B) 

C) 

D) 

1. A child going on a trip is told that out of his 8 favourite toys, he can bring **at most** three toys. How many ways can be select the toys he brings?
2. 8P0 + 8P1 + 8P2 + 8P3
3. 8C0 + 8C1 + 8C2 + 8C3
4. 8C3 – (8C0 + 8C1 + 8C2)
5. 8C0 × 8C1 × 8C2 × 8C3
6. Calculate: 
7. 3
8. 15
9. 24
10. 30
11. Solve for n: 
12. -13
13. 11
14. 12
15. 13



1. How many different routes are there from A to B, if you only travel south or east?
2. 28
3. 112
4. 360
5. 1440

**Part 2: Questions**

Complete each question in the space provided. Show ALL workings to receive full marks.

1. A group of five Art Club students are to be selected for a field trip to The Rooms. If there are 5 boys and 6 girls in the Art Club, how many ways can the teacher select the five students if there must be at least 3 boys? [4 marks]
2. Algebraically solve for *n*:  [4 marks]
3. Algebraically solve for *n*:  [4 marks]
4. How many ways can you arrange the letters of the word MONDAY if: [3 marks]
5. each letter is used only once?
6. two vowels and two consonants are used to make a four letter word?