

**Mathematics 3201**  
**Make-Up Test (Unit 3) Probability**

Name: \_\_\_\_\_

FORMULAE
$P(A \cap B) = P(A) \times P(A B)$
$P(A \cup B) = P(A) + P(B) - P(A \cap B)$
$P(A \text{ and } B) = P(A) \times P(B)$

**Part A :** Place the letter corresponding to the correct answer to each of the following in the appropriate blank at the right.

1. The weather forecast is calling for a 30% chance of snow for Christmas. What are the odds in 1. \_\_\_\_\_ favor of **NOT** having snow for Christmas?

- (A) 3:10  
(C) 3:7
- (B) 10:3  
(D) 7:3

2. There are 12 candy in a bowl : **4 jelly beans, 3 candy canes, and 5 jolly ranchers.** If 3 candy 2. \_\_\_\_\_ are selected, what is the probability selecting a jolly rancher, a candy cane and a jelly bean in this order if the candy selected are not replaced?

- (A)  $\left(\frac{5}{12}\right) \times \left(\frac{4}{12}\right) \times \left(\frac{3}{12}\right)$   
(C)  $\left(\frac{7}{12}\right) \times \left(\frac{9}{11}\right) \times \left(\frac{6}{10}\right)$
- (B)  $\left(\frac{5}{12}\right) \times \left(\frac{3}{11}\right) \times \left(\frac{4}{10}\right)$   
(D)  $\left(\frac{4}{12}\right) \times \left(\frac{3}{11}\right) \times \left(\frac{5}{10}\right)$

3. The odds in favor of you passing this Math test is 4 : 1 . As a percent what is the probability 3. \_\_\_\_\_ of you passing ?

- (A) 20%  
(C) 75%
- (B) 25%  
(D) 80%

4. A student has a four colored spinner and a six sided die with each side numbered one through six. What is the probability of rolling a number less than 4 and the color green on the spinner? 4. \_\_\_\_

(A)  $\frac{1}{8}$

(B)  $\frac{1}{6}$

(C)  $\frac{3}{4}$

(D)  $\frac{3}{24}$

5. Nick, Sarah and four other students are competing in a cross country race. What is the probability that Nick finishes first and Sarah finishes second in the race? 5. \_\_\_\_

(A)  $\frac{1}{720}$

(B)  $\frac{1}{120}$

(C)  $\frac{1}{60}$

(D)  $\frac{1}{5}$

6. Dan has a 40% probability of passing Math this year and a 70% probability of getting a job for the summer. What is his probability of him **NOT** passing Math and getting a job? 6. \_\_\_\_

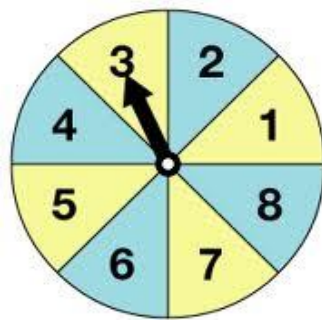
(A)  $\frac{3}{25}$

(B)  $\frac{7}{25}$

(C)  $\frac{21}{50}$

(D)  $\frac{11}{10}$

7. The Student Council at Mealy Mountain is having a Christmas contest. If a student spins the spinner twice and gets two 4's, they win. What are the odds of a student winning? 7. \_\_\_\_



(A) 1: 64

(B) 1:63

(C) 1:16

(D) 1:8

8. A deck of 40 cards consists of 4 different colored sets: red, blue, green and yellow. Each set is numbered from 0 to 9 as shown below. If two cards are randomly picked from the deck, what is the probability that the first card is blue or green and the second card is a 5, if the first card is replaced? 8. \_\_\_\_

Card Colour	Cards
red	0 1 2 3 4 5 6 7 8 9
blue	0 1 2 3 4 5 6 7 8 9
green	0 1 2 3 4 5 6 7 8 9
yellow	0 1 2 3 4 5 6 7 8 9

- (A)  $\frac{2}{79}$  (B)  $\frac{3}{79}$   
 (C)  $\frac{1}{40}$  (D)  $\frac{1}{20}$
8. At a traffic the red light is on for 30 seconds, amber for 5 seconds and green for 45 seconds. What is the probability of arriving at the light and the light is red? 8. \_\_\_\_

- (A)  $\frac{3}{8}$  (B)  $\frac{5}{8}$   
 (C)  $\frac{2}{5}$  (D)  $\frac{3}{5}$

9. There are 40 students in a class where 25 students surf the internet and 15 uses email. Of these 10 students do both. What is the probability that a randomly selected student in the class do **NOT** surf the internet or use email? 9. \_\_\_\_

- (A) 25% (B) 37.5%  
 (C) 50% (D) 75%

10. In a bag there are 2 white marbles and 3 yellow marbles. In a second bag there are 2 green and 1 orange marble. What is the probability of drawing 1 white marble and 1 green marble? 10. \_\_\_\_

(A)  $\left(\frac{3}{8}\right) \times \left(\frac{2}{7}\right)$

(B)  $\left(\frac{2}{5}\right) \times \left(\frac{2}{3}\right)$

(C)  $\left(\frac{3}{5}\right) \times \left(\frac{1}{3}\right)$

(D)  $\left(\frac{3}{8}\right) \times \left(\frac{2}{8}\right)$

11. A and B are mutually exclusive events. The probability of A,  $P(A)$ , is 25% and the probability of B,  $P(B)$ , is 60%. What is the probability of A or B,  $P(A \cup B)$ ' not occurring? 11. \_\_\_\_

(A) 15%

(B) 35%

(C) 40%

(D) 85%

**Part B** : Answer all questions and show your workings.

1. A golf bag contains 6 white balls and 8 yellow balls. What is the probability of each event if the balls randomly selected are not placed back into the bag?

i) Choosing 3 yellow balls. **(2 marks)**

ii) Choosing 2 white balls and a yellow ball in this order. **(2 marks)**

2. Four people are randomly selected for a group of 8 boys and 6 girls. What is the probability of each event ?

(A) All 4 people are boys. **(3 marks)**

(B) At least 3 people will be girls. **(3 marks)**

3. The probability of a student completing their Math assignment is  $\frac{3}{5}$ . The odds that she will pass her Math test is 4:7. What is the probability that she will complete her Math assignment and not pass her Math test? **(3 marks)**

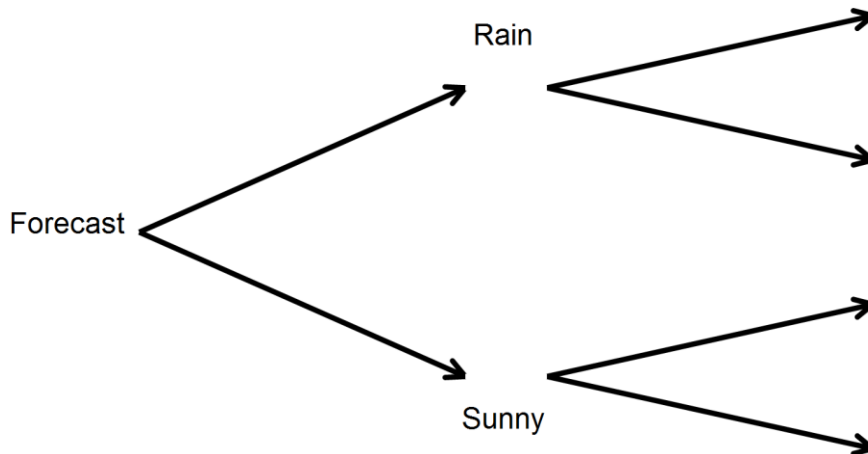
4. There are 100 boys and 120 girls in Grade 12. Twenty boys and thirty girls own a ski doo. If a student is randomly selected:

i) What is the probability the student owns a ski doo? **(1.5 marks)**

ii) What is the probability that the student having their own ski doo is a girl? **(1.5 marks)**

5. Mr. Math is teaching Math 3201 this year and based on previous test scores there is a 70% chance a student will pass a test if it rains the night before and a 20% chance if it's sunny the night before. For Friday's test the forecast for Thursday night is a 70% chance of sunny weather. What is the probability that a student will pass Friday's test?

**(3 marks)**



6. The music group at Mealy Mountain Collegiate is raising money for a trip to Nova Scotia. They sell 5000 tickets on two prizes:

**1<sup>st</sup> Prize            \$1500 Cash**

**2<sup>nd</sup> Prize            A CD playing all their musical talent**

If Mr. Math has 150 tickets, what is the probability of him winning both prizes if the first ticket drawn is **NOT** replaced? **(3 marks)**

7. A box contains the letters **A, B, G, H, M, N** and **T**. What is the probability of randomly selecting 4 letters and getting **M, A, T, H** in this order. **(2 marks)**