

**Counting Methods: Chapter 2**

<b><u>Practice Questions</u></b>	<b><u>Notes</u></b>
<p>1. How many Canadian Postal codes are possible if any letter can be used (and repeated), but all digits must be unique?</p> <p>A) 17 576 000</p> <p>B) 12 654 720</p> <p>C) 15 600 000</p> <p>D) 11 232 000</p>	B
<p>2. A restaurant lists 6 meat dishes, 3 fish dishes and 2 vegetable dishes as main courses.</p> <p>i. How many different single main dishes can be ordered?</p> <p>A) 36</p> <p>B) 11</p> <p>C) 20</p> <p>D) 12</p> <p>ii. How many dishes can be ordered if each must have 1 meat and 1 vegetable? _____</p>	<p>i. B</p> <p>ii. 12</p>
<p>3. How many 5-letter permutations of the letters of the word <b>MANUSCRIPT</b> begin with <b>A</b>, end in <b>I</b> and otherwise contain only consonants (with no repetitions of letters)?</p> <p>A) 56</p> <p>B) 30240</p> <p>C) 336</p> <p>D) 210</p>	D

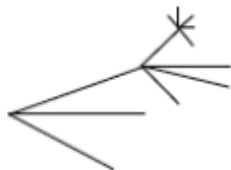
<p>4. How many license plates are possible, which contain 4 letters followed by three numbers if no repetitions of letters are allowed?</p> <p>A) 456 976 000</p> <p>B) 17 576 000</p> <p>C) 358 800 000</p> <p>D) 725 000</p>	C
<p>5. <math>n! =</math> _____</p> <p>A) <math>\frac{(n-r)!}{r!}</math></p> <p>B) <math>n(n-1)(n-2) \times \dots \times (n-r+1)</math></p> <p>C) <math>\frac{n(n-1)(n-2) \times \dots \times 3 \times 2 \times 1}{r!}</math></p> <p>D) <math>\frac{(n-r)!}{r!}</math></p>	C
<p>6. i. Determine the number of 4-digit numbers that can be created using the digits 0 to 9 without repetition.</p> <p>ii. Determine the number of six-digit odd numbers that can be created using the digits 0 to 9 without repetition.</p>	<p>i. 4536</p> <p>ii. 67 200</p>

7. The value of  $\frac{95!}{93!}$  is \_\_\_\_\_.

8930

8.

The beginning of a tree diagram is shown.



A tree diagram is created to display the number of outfits possible from 3 pairs of pants, 4 shirts, and 5 pairs of socks. How many of the smallest branches will there be?

\_\_\_\_\_

60

9. A contractor needs 4 carpenters. The union hall sends the contractor 4 females and 6 males for the contractor to choose from. In how many ways can the contractor pick his work crew if there must be either 2 or 3 females on the work crew?

- A) 114  
B) 2160  
C) 45  
D) 60

A

10. Use the following information to answer the question.

A local restaurant offers milkshakes in 20 different flavours. The owner has decided to offer customers the choice of blending two different flavours together to create more flavour options.

The total number of different possible two-flavour blended milkshakes is

- A. 40
- B. 190
- C. 380
- D. 400

B


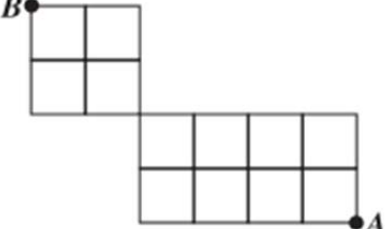
11.

Julian is planning a trip from Calgary to Denver. The map below shows the different flight options from a particular airline.



8

If Julian must fly with this airline, then how many different flight options are possible?

<p><b>12.</b> Determine the number of distinct arrangements of all the letters in the word TATTOO.</p>	<p>60</p>
<p><b>13.</b> Determine the number of different possible routes that Tyler can travel from Point A to Point B if he travels only north or west.</p> <p>i.</p>  <p>ii.</p> 	<p>i. 15</p> <p>ii. 90</p>