

## Publisher Questions to Western and Northern Canadian Protocol (WNCP) Mathematics Team

### Apprenticeship and Workplace Mathematics – Grade 10

#### Measurement

1. SO 3, AI 3.5: Please clarify if the statement in parentheses (used in shipping and air travel) is an example or an i.e.?  
**WNCP Response: The statement in parentheses is not an example. It is the most common context in which length + width + height is used.**

### Apprenticeship and Workplace Mathematics – Grade 11

#### Algebra

1. SO 2, AI 2.3: What applications can realistically be used that demonstrate zero or undefined slope? This is asked as it was made clear that students must see reasons for the math they are being taught, particularly with respect to solving problems.  
**WNCP Response: Slope should be explored to include discussion of situations where the slope is zero, positive, negative and undefined. Slope is a rate of change. Anytime there is no change, the slope is 0. For example, in sketching a graph of speed vs. time, if the speed is constant, the slope of the graph would be 0. A context in which the slope is undefined can be discussed in contrast to those situations in which the slope is 0. Thus a ladder that is vertical has a slope that is undefined when considering horizontal and vertical displacement.**

### Foundations of Mathematics and Pre-calculus – Grade 10

#### Algebra and Number

1. SO 2: Is it intended that the term “simplifying” is the same as “expressing in reduced form”?  
**WNCP Response: Yes, but the phrase “expressing in reduced form” is problematic and should not be used. Instead, one should say “expressed in simplest form.”**

## Foundations of Mathematics – Grade 12

### Financial Mathematics

1. SO 2: Analyze cost of renting, leasing, or buying what? It has not been stated what this SO is actually referring to. Is it an asset? This is what AI 2.1 refers to, but this is not stated in the SO.

**WNCP Response: This depends on the context chosen – house, car, specialized tools, farm equipment and land, etc.**

### Probability

2. SO 4: Is it expected that students would be required to use cases? When students are asked to find the number of arrangements the questions could require them to use cases. In the more straightforward questions students can find the answer directly using the Fundamental Counting Principle. In other questions it is necessary to work through a number of cases and then to add to find the answer.

Example: How many different numbers less than 699 can be made using the digits 1, 2, 3, 6 and 7 if digits cannot be repeated.

Answer:

Case 1: 1-digit numbers    There are 5 such numbers

Case 2: 2-digit numbers     $5 \times 4 = 20$  numbers

Case 3: 3-digit numbers     $4 \times 4 \times 3 = 48$  numbers (the first digit cannot be 7 so we have only 4 possible choices for the first digit).

Answer is total of the cases or  $5 + 20 + 48 = 73$ .

**WNCP Response: Permutation problems should be in a realistic and relevant context and limited to a couple of restrictions. Permutations with restrictions should not be the focus of the learning of this outcome. The above example is not given in a realistic and relevant context.**

## Pre-calculus – Grade 12

### Permutations, Combinations and Binomial Theorem

1. SO 2: This same example could apply to the probability section also. Cases may be necessary to find the total possibilities and/or the favourable cases before calculating the probability.

**WNCP Response: Probability problems should be in a realistic and relevant context and limited to a couple of restrictions. Probability problems with restrictions should not be the focus of the learning of this outcome.**