

Frequently Asked Questions about the Math Competency Exam and Study Suggestions

1. I have concerns about my mathematical knowledge; will we be learning mathematics content in the math methods course?

As you work through lessons during the mathematics methods course you will be learning how to teach children mathematics. Your own knowledge of mathematics will likely be strengthened as a result however, we do not teach mathematics concepts directly. We expect that all undergraduate students know basic Grade 6/7 knowledge prior to entering the course.

2. I have taken the on-line exam and had some problems. What should I do to address this issue before September?

You can purchase the course text *Elementary and Middle School Mathematics Teaching Developmentally (Canadian Edition)* prior to entering the course and try out some of the activities in number sense in particular. For some students this is all you will need if you are 'rusty'. However, if you have always had difficulty with mathematics and problem solving in particular, then you will need to do further work.

We suggest that you work through word problems beginning first at the level with which you feel comfortable (whatever grade that might be) and then increasing the difficulty until you are comfortable at Grade 6/7. Mathematics is a language and solving word problems means becoming comfortable in that language. In order to do that you need to work through many problems just as you need to spend a great deal of time speaking French in order to become proficient in that language.

If you are in the Thunder Bay area you can find the TOPS Deck D (Gr 6) and Double A (Gr 7) word problems on reserve in the library. If you are out of the area but near another Faculty of Education it may be in that library or in a local school. Otherwise it is available for purchase although unfortunately it is expensive (see number below).

3. I have obtained a series of word problems how should I work through them?

Students vary in their learning style. Nonetheless, the research in the area suggests that you will benefit the most by doing the problems with one or two other people at a similar or slightly stronger level. In order to genuinely learn mathematics (rather than simply applying rote formulas) you will benefit from explaining your thinking about a problem to someone else and having him or her explain their thinking to you. You will also learn much more by trying to solve problems in different ways. If you can solve a problem in more than one way it will help you to develop some flexibility in your thinking as a learner and as a teacher. Try to find two ways to solve each problem. For example,

look at the ratio problem below which comes from the Deck D that we have recommended students study from:

Janey and Marie are runners. Janey runs 4 laps for every 3 laps that Marie runs. After Janey has run 12 laps how many would Marie have run?

Students have solved the preceding problem in the following ways:

- a. Some students draw hash marks for each of the runners drawing 4 for Janey and then 3 for Marie until they had reached 12 for Janey which gave them 9 for Marie.

Janey	Marie
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////	///
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- b. Some wrote it as a fraction (even though it is not) and found an equivalent ratio $\frac{3}{4} = \frac{?}{12}$. They multiplied the denominator 4 by 3 to get 12 therefore, the numerator 3 by 3 = 9 so $\frac{3}{4} = \frac{9}{12}$.
- c. Some of them drew two tracks and lapped the first 4 times for Janey and the second one 3 times for Marie. They repeated this procedure until Janey had run 12 laps, which gave Marie 9 laps.
- d. Some used a ratio table.

Janey	Marie
4	3
8	6
12	9

As you talk with a partner about the different ways to solve a problem you will learn more methods for solving future problems and more about mathematics.