# How to study math effectively

1. **Focus on understanding** the process rather than memorizing.

   - Start with questions like: What happens at this step? What theorem is used here?
   - Then focus on questions like: *Why* is this the next step? *Why* is this theorem used here?
   - Generalize the different cases.
   - Think of how this new topic relates to what you already learnt.

2. **Understand the vocabulary and terminology of math.**

Vocabulary in math generally falls into one of the following three categories:

<table>
<thead>
<tr>
<th>Category</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Words that are only used in a math context.</td>
<td>Hypotenuse, cosine, exponent, algebra, logarithmic, dividend, etc.</td>
</tr>
<tr>
<td>Words that have the same meaning in math and everyday life</td>
<td>Fraction, rate, line proportional, infinity, symmetry, etc.</td>
</tr>
<tr>
<td>Words that have a different meaning in math than in everyday life</td>
<td>Product, factor, prime, plot, difference, mode, function, series, etc.</td>
</tr>
</tbody>
</table>

Do you understand the math-specific vocabulary? If not, look it up!

3. **Keep your notes organized.**

   - Try to organize your notes in the following format:
     - Main concept
     - Example(s)
   - Put an exclamation mark beside things that are important and/or can be forgotten easily.
   - Write reminders for yourself in the margins.

4. **Create a consistent weekly study schedule.**

   - Think about when you are most alert in the day. Set time aside for math studying during this time.
   - If math is not your strongest subject, do it first. If you are tired, you will get frustrated faster and more easily.
   - Study in a distraction-free space. Try to make your study space inviting.
   - If you study better with other people, get a few classmates together for a study group.

5. **Create a math "cheat sheet."

   - This is a convenient way to keep all of the important formulas, theorems, concepts, definitions all on one page!
How to study math effectively

- When reading the textbook or class notes, write out the important pieces on one 8 ½” x 11” white piece of paper. Use different colors, underlining or boxes to organize the information.

6. Fill in the gaps in your knowledge.

Math is a subject that builds on itself. If you have gaps in previous knowledge required for the course you are taking, you must learn this material first!

For example, in order to do arithmetic operations without a calculator, you must know your multiplication table.

7. Seek help when you are stuck.

A big part of studying mathematics is problem-solving. You should expect to struggle with some math problems. However, if you’ve spent a fair bit of time on one problem and you don’t seem to be getting anywhere, seek help. You can ask a peer, ask your professor, search the internet or go to the Learning Centre on campus.

8. Recognize math anxiety.

Some students experience anxiety towards mathematics which can be a real barrier to learning. Math anxiety is commonly characterized by negative feelings towards math, belief that you cannot learn math, “forgetting everything” on assessments, and avoiding mathematics. Math anxiety also has real, physical symptoms associated with it, such as a racing heartbeat, sweating, nausea, shortness-of-breath, etc. Fortunately, many students can overcome their math anxiety with proper support. If you believe you have math anxiety, seek help from a Learning Strategist or Counsellor.