Math 100L: Lesson 8

Flashcard Vocabulary

- to eliminate (v)
- minor (adj)
- whereas (conjunction)
- resource (n)
- to generate (v)

Helpful Vocabulary

- to pile (v)
- hinge (n)
- to cancel (v)
- to ponder (v)
- absolutely (adv)
- funny (adj)
- to tie (v)
- highfalutin (adj)
- to switch (v)
- tag (v)
- light bulb (n)
- imaginary (adj)
- antidote (n)
- woes (n)
- like white on rice

Appointment 1: Study Skills; Linear Equations 2

Last week we focused on repetition as an important study skill, along with connections and visual charts. This week we are going to focus on **mnemonics** (pronounced “ne-mon-iks”). Read the following information on study skills to your Speaking Partner.

**Study Skills: Mnemonics**

What is a mnemonic? It is any learning technique that helps you remember something. There are two common mnemonic techniques: acrostics and acronyms. Those are two complicated words which really mean something very simple.

“Acrostic” means using the first letter of each word that you are trying to remember, then making up a sentence with those letters.

For example the sentence “Please excuse my dear aunt Sally” is used to remember the order of operations in math. The “p” in *please* stands for “parentheses,” the “e” in *excuse* stands for “exponents,” the “m” in *my* stands for “multiplication,” the “d” in *dear* stands for “division,” the “a” in *aunt* stands for “addition,” and the “s” in *Sally* stands for “subtraction.” This can be a useful phrase when doing equations so you don’t forget which operation to do first.

“Acronym” refers to using each first letter from a group of words to
form a new word.

For example, LDS stands for Latter-day Saint.

Try PEMDAS for the order of operations.

Mnemonics are very powerful memorization tools that work well with a little practice. The more you use them, the easier it is to memorize information.

Discussion Questions

- Have you used mnemonics before?
- How can they help you in this math class?
- Can you think of examples of acronyms that you are familiar with?
- Have you heard of the acronym SCUBA? It stands for Self Contained Underwater Breathing Apparatus.
- Make up a different sentence for the order of operations acronym above (instead of “Please Excuse My Dear Aunt Sally”).

Solving Percent Equations

This week you will be learning how to solve equations using percentages.

Sometimes however, it isn’t quite that easy to see what needs to be done. Here are three examples that look similar but are done very differently. Remember “what” means “x”, “is” means “=” and “of” means times.

Have your Speaking Partner solve the following equations so you can listen to the correct math terminology:

16 is what percent of 48?
What is 68% of 75?
Now it’s your turn:
32 is 48% of what?
What is 12% of 82?
**Pronunciation Practice**

Practice saying the following numbers:

- .73 = 73%
- .2 = 20%
- .05 = 5 %
- 1 = 100%
- 2.3 = 230%

\[
5(x - 3) - x = 2x - 32
\]

\[
.3q - 8 + 3q = 3q - 5
\]

\[
0.4x = 16 - 0.32x
\]

257.6 cm²

56 mm

$226.19

64,872

w = 7 mm

l = 14 mm

238,987

34,269

110

304.003

**Appointment 2: Transportation; Linear Equations with Fractions**

Read the following information to your Speaking Partner.

<table>
<thead>
<tr>
<th><strong>Transportation</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>How much does it cost to get from one place to another? Public transportation and private transportation both have their hidden costs.</td>
</tr>
<tr>
<td><strong>Public Transportation</strong></td>
</tr>
<tr>
<td>Cost of bus or train fare</td>
</tr>
<tr>
<td>Cost of time spent traveling</td>
</tr>
<tr>
<td><strong>Private Transportation</strong></td>
</tr>
<tr>
<td>Gas</td>
</tr>
<tr>
<td>Maintenance: tune-ups, oil, tires, etc.</td>
</tr>
<tr>
<td>Insurance</td>
</tr>
<tr>
<td>Registration</td>
</tr>
</tbody>
</table>

An important part of budgeting is determining where your money is being spent. Transportation is often a large part of a person’s budget. Spending money on a bicycle can sometimes save money in the long run. Each person must look at all the options in order to make wise decisions.
Discussion Questions

- What form of transportation do you use now?
- What is meant by the “cost of time spent traveling” when using public transportation?
- What impact on the environment does your transportation have?
- Is traffic a problem in your area?
- How much time do you spend each day going from one place to another?

Fractions

Read the following material about solving linear equations with fractions.

\[
\frac{2}{7} - \frac{x - 3}{4} = 5
\]

You have the ability to wipe out all of the fractions. Fractions are simply statements of division. The opposite of division is multiplication — and you have the power to multiply both sides of the equation by anything you want to. The question is, what will undo a division by 7 and by 4; the answer is multiplication by 28. Here is what it looks like:

\[
\begin{align*}
    \frac{2}{7} - \frac{x - 3}{4} &= 5 \\
    (28)\left(\frac{2}{7}\right) - (28)\frac{x - 3}{4} &= 5(28) \\
    8 - 7x + 21 &= 140 \\
    -7x + 29 &= 140 \\
    -7x &= 111 \\
    x &= \frac{111}{7}
\end{align*}
\]

(Not a nice looking answer, but it is right!)

Every problem can be boiled down to three steps:

1. Simplify
2. Add/Subtract
3. Multiply/Divide

Have your Speaking Partner solve the following equations so you can listen to the correct math terminology.

Now it’s your turn.

\[
\begin{align*}
    \frac{8}{3}x - 4 &= 12 \\
    \frac{4}{5}x &= 3x - \frac{5}{3} \\
    \frac{1}{3}x - 5 &= 4 + \frac{1}{2}x \\
    \frac{1}{8}(x - 4) &= 5 + 3x
\end{align*}
\]
Pronunciation Practice

*Practice stressed syllables in noun-verb pairs.*
Some two syllable words are nouns when stress is on the first syllable and verbs when stress is on the second syllable.
Example:

**Noun**
a record
a present
a conflict

**Verb**
to record
to present
to conflict

Listen to your Speaking Partner say the following words. Repeat the words. Can you hear the stressed syllable? Make sure you understand the words.

**Noun**
a protest
an object
a permit
a convert
a suspect
a contract

**Verb**
to protest
to object
to permit
to convert
to suspect
to contract

Make up a story with your Speaking Partner using as many of the nouns and verbs above as you can.