Math 100L: Lesson 9 Flashcard

Vocabulary
- to compound (v)
- to involve (v)
- function (n)
- benefit (n)
- to accumulate (v)
- ultimate (adj)
- impact (n)
- feature (n)
- crucial (adj)

Helpful Vocabulary
- odd (adj)
- snappy (adj)
- to recall (v)
- slow motion (n, adj)
- calculation (n)
- Nper (n)
- PV (n)
- frequent (adj)
- versus (prep)
- lump sum (n)
- balance (n)
- loan (n)
- bondage (n)
- to deposit (v)
- wealthy (adj)
- retirement (n)
- welfare (n)
- canned (adj)
- to donate (v)
- postwar (adj)
- to cherish (v)
- fellowman (n)
- devotion (n)
- clarity (adv)
- plea (n)
- afflicted (n)
- forceful (adj)
- abundance (n)
- to impart (v)
- portion (n)
- needy (n)
- torment (n)
- bound (v)
- to hang on (v)
- fountain (n)
- to proclaim (v)
- not merely (adv)
- to overlook (v)
- to incline (v)
- essence (n)
- to ensure (v)
- fulfilment (n)
- flesh (n)
- inseparably (adv)
- to complement (v)
- counterfeit (n)
- pressing (adj)
- progression (n)
- to overflow (v)
- to flood (v)
- to assess (v)
- damage (n)
- telegram (n)
- fence (n)
- to haul (v)
- hay (n)
- to level (v)
- to alleviate (v)
- enlisted (n)
- to stretch (v)
- distress (n)
- succor (n)
- magically (adv)
- expert (n)
- to deprive (v)
- to render (v)
- face it (phrasal verb)
- remarkable (adj)
- stream (n)
- poverty (n)
- sorrow (n)
- widespread (adj)
- anew (adv)
- to undergird (v)
- facet (n)
- congregation (n)
- one-size-fits-all (adj)
- geographic (adj)
- sleeve (n)
- sublime (adj)
- to neglect (v)
- to intertwine (v)
Read the following information about the use of the verb “to do” to your Speaking Partner.

You learned about the verb "to do" last week. Let's review the use of this verb. To do is one of the most common verbs in English. It has many uses. It can be used as a helping verb and a main verb as well as in questions and negative statements. It is important for you to become comfortable and familiar with this word, as it is used so often in English speaking.

Learn the different forms of the verb to do.

Uses of “to do”

Helping Verb: When used as a helping verb, “do” is always followed by the base form of the main verb.

I do go often to the library to study. I do want to go with you.

Main Verb: When used as a main verb, “do” means to perform, to work, to act. The difference between the verb “to do” and “to make” can be confusing. Use the verb “do” when speaking about things in general; use the verb “make” when speaking about things you can create. (There are some exceptions to this rule, but we will not talk about them right now.)

My sister does the dishes.

My sister makes a cake.

My sister does her homework.

My sister makes dinner.

Questions: Main verb or helping verb.

To do is used as the main verb when asking general questions about what happens, is happening, is going to happen, etc.

What are you doing?
What have they done?
What do you do on Saturdays?

To do is used as the helping verb in questions

Did she go to class on Monday?

Does he want some ice cream too?

Do you like math?

Negative Statements: To do is very often contracted in negative statements.

I don’t like fractions.

I didn’t go on Saturday.

He doesn’t eat meat.

There is an interesting LDS story about the verb “to do.” At a stake Primary conference in 1957, Spencer W. Kimball heard the song “I am a Child of God.” After hearing the song, President Kimball asked the Primary leaders if the lines “Teach me all that I must know / To live with him someday” could be changed to “Teach me all that I must do / To live with him someday.” President Kimball later explained, “To know isn’t enough. The devils know and tremble; the devils know everything. We have to do something.”
Discussion Questions

- What new things did you learn about the verb “to do”?
- Ask your Speaking Partner to tell you about the words “I do” in American wedding ceremonies.
- With your Speaking Partner, fill in the blanks with the correct form of the verb “to do” (or “to make”).

- My mother likes chocolate ice cream, but she ______ like vanilla ice cream.
- These two companies ______ like to ________ business with each other.
- ______ the cat like to sleep on the sofa?
- Where ______ my brother put his CDs?
- My brother loves to watch soccer but he ________ like to watch basketball.
- My classmates ________ a cake for my birthday.

Exponents

This week you will be learning how to solve equations with exponents. Go over the following information with your Speaking Partner.

Here is a summary of how you can simplify expressions with exponents:

<table>
<thead>
<tr>
<th>Rule</th>
<th>Official</th>
<th>Example</th>
<th>Why</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiplication: add exponents</td>
<td>$a^m \cdot a^n = a^{m+n}$</td>
<td>$3x^2 \cdot 2x^5 = 6x^7$</td>
<td>$3x^2\underbrace{2x^5 = 6x^7}$</td>
</tr>
<tr>
<td>Exponent to a power: multiply exponents</td>
<td>$(a^m)^n = a^{mn}$</td>
<td>$(5x^2)^3 = 125x^6$</td>
<td>$(5x^2)(5x^2)(5x^2) = 125x^6$</td>
</tr>
<tr>
<td>Division: subtract exponents</td>
<td>$a^m \div a^n = a^{m-n}$</td>
<td>$36x^8 \div 4x^6 = 9x^2$</td>
<td>$36x^\underbrace{4x^6 = 9x^2}$</td>
</tr>
<tr>
<td>Exponent of 0</td>
<td>$a^0 = 1$ if $a \neq 0$</td>
<td>$7^0 = 1; \quad x^0 = 1$</td>
<td>$1 = x^7 \div x^7$ by division rule $x^7$</td>
</tr>
<tr>
<td>Negative exponent</td>
<td>$a^{-n} = \frac{1}{a^n}$</td>
<td>$2^{-4} = 1; \quad 1 = x^7$</td>
<td>$1 = \frac{x^7}{x^7} = x^7 \div x^7$</td>
</tr>
</tbody>
</table>

Have your Speaking Partner solve the following equations with exponents so you can listen to the correct math terminology.
\((2m^2)^5\)

\(p^6\cdot p^{11}\)

Now it’s your turn.

\((r^8)^{-2}\)

\(4x^2\) times \(5x^7\)

**Pronunciation Practice**

Practice saying the following numbers:

\((3g^2\cdot n^4\cdot p)^6\)

\(16^6\)

\(12m^5/32m^6\)

\(4^{-6}\)

\(r^8\cdot r^{-2}\)

\(14x - 3 = 6(x - 4)\)

\(8m - 4(m + 6) = 13m + 9\)

\(0053x + .067 - .005x\)

\(85,678,908\)

\(13,582\)

\(\$567.89\)

\(002.83\)

\(45/67\)

\(1/3 \times 5/16\)

Years:

\(2011\)

\(1996\)

\(1775\)

\(2006\)

\(2000\)

\(2012\)

\(1968\)
"Appointment 2: Compounding Interest; Visual Chart"

*Bring your laptop computer and your visual chart for Chapter 3 to this Speaking Partner visit.* This week you are learning how to use Excel spreadsheets to calculate interest on savings and loans. Discuss with your Speaking Partner how to do the following calculations using Excel.

- To see how interest can be compounded quarterly, monthly, or daily, open the FV calculation box and change a 10% annual rate to quarterly, monthly, or daily as follows: Quarterly Rate: \( \frac{.10}{4} \) (Changing the rate to 2.5% or .025)
  - Monthly Rate: \( \frac{.10}{12} \) (Changing the rate to .83% or .0083)
  - Daily Rate: \( \frac{.10}{365} \) (Changing the rate to .0274% or .000274)
- Change ten years of compounding to quarterly, monthly, or daily as follows:
  - Quarterly Nper: \( 10 \times 4 \) (Changing the compounding periods to 40)
  - Monthly Nper: \( 10 \times 12 \) (Changing the compounding periods to 120)
  - Daily Nper: \( 10 \times 365 \) (Changing the compounding periods to 3,650)

- Calculate payments, interest rates, and Number of Periods
- Monthly Payment Calculation. If you wanted to buy a car that costs $15,000 and you can get a loan at 6% interest for four years, you can determine the monthly payments using the PMT Excel function as follows:
  - Rate: \( .06/12 \) or .0.05 (monthly interest) Nper: 4*12 or 48 (months)
  - Pv: -15000
  - Fv: 0
  - Monthly Payment = $352.28

When you have paid the monthly payment for 48 months, you will own the car and the future value of the loan is zero because the loan is paid off.

- Interest Paid on a Car Loan. You calculate the amount of interest you would pay on a four-year car loan of $15,000 at 6% annual interest using the Excel Pmt function as follows: Rate: \( .06/12 \) (or .0.05 monthly interest)
Nper: 4*12 (or 48 months)

Pv: –15000
Fv: 0

Monthly Payment = $352.28
Total Payment = $352.28 * 48 (payments) = $16,909.22
Interest Paid = $16,909.22 (paid) – $15,000 (borrowed) = $1,909.22

Tip: You can have Excel calculate this for you by entering the Pmt function to calculate the monthly payment and then, on the formula bar at the top of the Excel sheet, multiply by 48 payments and subtract the $15,000 you borrowed. The formula will be as follows:

=PMT(0.06/12, 4*12, -15000, 0) * 48 - 15000

• You can also double-click on the cell with the Pmt calculation in it, and the formula will appear in the cell. Now you can multiply by 48 payments and subtract 15000 and enter this formula in the cell. The cell will have the answer and the formula will be in the formula bar.

• Interest Collected on Your Savings. The interest you will earn on your savings of $350.00 per month earning 6% annual interest for 39 months (the number of months we calculated above would be required to accumulate $15,000 in savings) is calculated using the FV function in Excel as follows:
Rate: .06/12
Nper: 39
Pmt: –350
Pv: 0

FV = $15,030.44

Amount Deposited in Savings = $350 * 39 (deposits) = $13,650.00
Interest Earned on Savings = $15,030.44 – $13,650.00 = $1,380.44

Again, you can double-click on the cell containing the FV calculation and subtract 350*39 and enter this formula, giving you the amount of interest earned. You can make the same adjustment to the formula in the formula bar. The resulting formula is as follows:

=FV(0.06/12, 39, -350) - 350 * 39
Visual Chart Chapter 3

Read the following material to your Speaking Partner.

This week your assignment is to make a visual chart which includes everything you have just learned in Chapter 3—Algebra. The information for this visual chart should include material from Lessons 7–9. Your Visual Chart should include information on linear equations, applications, and equations with exponents. Divide up one side of one paper into sections. In those sections, write everything you need to be able to do well on the exam this week.

Discussion Questions

- Show your visual chart to your Speaking Partner and describe the information you have included. If you have not completed your visual chart, use the textbook to discuss the most important points from each chapter.
- Do you feel prepared this week for the exam?
- How well do you feel you know the material?
- Solve the following linear equations with your Speaking Partner.
  
a. \(5x + 3 = 7x - 15\)
  
b. \(4f + 9 = 9\)
  
c. \(y = mx + b\), solve for \(b\)
  
d. \(A = \frac{1}{2}bh\), solve for \(b\)
  
e. 18 is what percent of 58?
  
f. What is 13% of 79?
  
g. \(5x - 2 = 3\)
  
h. \(4x + 7 = 5x\)

Pronunciation Practice

Reduced pronunciation: “and,” “or”

In spoken English, the words “and” and “or” have reduced pronunciation. The reduced pronunciations are standard English, not slang. You will understand English better if you are familiar with how these reduced words sound.

AND

And is pronounced like the letter n. It sounds like the ending of “driven” and is connected to the preceding word.

Examples:
  
  paper n pencil
  
  bread n butter
  
  bacon n eggs

OR
Or is pronounced like the letter r. It sounds like the ending of "bigger" and is also connected to the preceding word. Examples: right r wrong rain r snow one r two
The following sentences are from Brother Baird's video lectures. Read them with the reduced pronunciation for and and or. See if you recognize the reductions from the lectures.
• Two and three gives us five.
• Take two to the 16th power and divide it by two to the 13th power.
• So that means that this and this must be the same thing.
• You can do it one way or the other, it doesn't matter.
• You can add, subtract, multiply, or divide anything.

Listen to your Speaking Partner say the following phrases with the reduced pronunciation. Repeat the phrases.

<table>
<thead>
<tr>
<th>Spoken English</th>
<th>Written English</th>
</tr>
</thead>
<tbody>
<tr>
<td>redder white</td>
<td>red and white</td>
</tr>
<tr>
<td>deaden buried</td>
<td>dead and buried</td>
</tr>
<tr>
<td>often on</td>
<td>off and on</td>
</tr>
<tr>
<td>fallen spring</td>
<td>fall and spring</td>
</tr>
<tr>
<td>given take</td>
<td>give and take</td>
</tr>
<tr>
<td>blacker white</td>
<td>black or white</td>
</tr>
<tr>
<td>happier sad</td>
<td>happy or sad</td>
</tr>
<tr>
<td>runner walk</td>
<td>run or walk</td>
</tr>
<tr>
<td>buyer sell</td>
<td>buy or sell</td>
</tr>
<tr>
<td>cleaner dirty</td>
<td>clean or dirty</td>
</tr>
</tbody>
</table>