# Introduction to WeBWorK at NAU

### I. What is WeBWorK?

- *WeBWorK* is an online homework system. Professors assign problems from an available national bank of problems or write new problems to assign.
- Using *WeBWorK*, you may attempt homework problems more than once. After each try, a message appears telling you whether the answer is correct or not so you can rework the problem and understand the topic better
- Each student has a different version of each problem.

### II. How to use WeBWorK to do your homework

- 1. Using an internet browser, go to the site: http://webwork.math.nau.edu/webwork2/MFalk\_137
- Click on the 'Login' button. This will take you to a login page. Enter your login name and password, and click on the 'Continue' button. Your login name is your <u>dana</u> <u>login name</u>, as in dbg432, the same as the part of your nau e-mail address before the @. Your initial password is the last five digits of your seven-digit NAU id (EmpID). You should change this. If you forget your password, I can reset it for you.
- 3. If your login is correct you will see a link in the left hand column to Homework Sets.

## **III.** Completing Problem Sets

- 1. First, select Homework Sets, and then select the set you wish to complete.
- Get a hard copy. You will want a hard copy for working the problems and studying for exams. Select the problem set you plan to complete. Then select the mode (pdf, postscript, etc.) for printing. Most students use pdf, which requires Adobe Acrobat Reader. This is available as a free download at the NAU ITS software download site <u>http://www4.nau.edu/its/pcsupport/software/</u>.) Finally, print the file.
- 3. Once you have worked some or all of the problems on paper (important!) and wish to enter results, select the problem set via the **Homework Sets**. Now you can select problems from the list and enter answers. It is helpful to use the preview feature to see what you have actually entered.
- 4. The WeBWorK system will tell you immediately whether your answer is correct. On most problems, if your answer is incorrect, you may rework the problem and enter another answer until you get the correct answer. On some problems, your professor may limit the number of attempts allowed. This will appear on the problem list. You do not have to complete the problems in a single session. You can logout and login again later and work on the set some more.
- 5. As long as the problem set is still "Open" (the deadline has not yet occurred), your answers will be accepted by the system and correct answers will contribute to your score. If the set is closed, you may still work the problems, but your score will not change. Also, once the set is closed, you have the option to see correct answers.
- 6. To check the status of your problems (e.g. to double check that your answers have been recorded), use the "Prob. List" button at the top of the page to see the problem list page.
- IV. Logout When finished, log out using the "Logout" button at the top right of the page.

## V. What to do if you have problems with WeBWorK:

- If you have a problem logging in, contact your instructor.
- If you have a problem printing out a set, ask a consultant at a university computer lab.
- If you have questions on specific homework problems, contact your instructor.
- If your account is idle for 30 minutes, you will be logged out, but your results will be saved.

#### VI. Comments on entry of answers.

- WeBWorK syntax is very similar to calculator syntax. See below.
- Some questions require a high degree of precision. If a numerical answer is correct, but it is not accepted by WeBWorK, try entering a more precise answer. If a symbolic answer, such as 3\*(sin(2))^2 is available, this symbolic form will be more accurate.
- Some questions require numerical answers rather than symbolic form. If you believe an answer in symbolic form (such as -5<sup>2</sup>) is correct, but WeBWorK does not accept the it, try expressing the answer in numerical form (such as -25 for the above).

## VII. Mathematical Symbols Available In WeBWorK

- + Addition; Subtraction; \* Multiplication; / Division; ^ or \*\* Exponentiation
- 2x, 2 x or 2\*x, also 2(3+4) also work for multiplication.
- Grouping: () [] {} as in [1+2]/[3(4+5)]
- Generally, enter expressions as you would in a calculator.
- Use ('s and )'s to make your meaning clear. You can also use ['s and ]'s and {'s and }'s.
- Don't enter 2/4+5 (which is 5.5) when you really want 2/(4+5) (which is 2/9).
- Don't enter 2/3\*4 (which is 8/3) when you really want 2/(3\*4) (which is 2/12).
- Entering big quotients with square brackets, e.g. [1+2+3+4]/[5+6+7+8], is a good idea.
- Write sin(t) instead of sint or sin t.
- Do not enter sin^2t even though you might see something like this in a text book. Mathematically speaking sin^2t is shorthand for (sin(t))^2 and must be entered this way.
- Is -5<sup>2</sup> positive or negative? It's negative. This is because the square operation is done before the negative sign is applied. Use (-5)<sup>2</sup> if you want to square negative 5.
- When in doubt use parentheses!!! :-)
- Use the "Preview Button" to see exactly how your entry looks. E.g. to tell the difference between 1+2/3+4 and [1+2]/[3+4] click the "Preview Button".
- Scientific notation: 2.1E2 gives 210; 2.1E-2 gives .021
- Mathematical constants: pi, e (but use exp(x) for  $e^x$ ).
- Mathematical functions: abs(), sqrt(), cos(), sin(), tan(), exp() [exp(x) for e^x], ln() or log() [natural log], logten [base 10 logarithm], sgn() [gives the sign of a number: -, + or 0], fact() [factorial of a nonnegative integer], step() [step(x) = 0 if x<0, step(x) = 1 if x >= 1]
- The trigonometric functions use radian measure.