## WeBWork Cheatsheet for Students

WeBWorK Syntax for Operations

| Operation | Your Answer | What to type in WeBWork |
| :--- | :--- | :--- |
| Addition | $2+7$ | $2+7$ or $2+7$ |
| Subtraction | $5-3$ | $5-3$ or $5-3$ |
| Multiplication | $4 \times 2$ | $4^{*} 2$ or $4^{*} 2$ |
| Division | $10 \div 2$ | $10 / 2$ |
| Exponents | $4^{3}$ | $4^{\wedge} 3$ or $4^{* *} 3$ |
| Fractions | $\frac{3}{7}$ | $3 / 7$ |
| Square Root | $\sqrt{3}$ | $\operatorname{sqrt}(3)$ or $3^{\wedge}(1 / 2)$ |
| Absolute Value | $\|x\|$ | abs $(\mathrm{x})$ or $\|x\|$ |

## Putting it All Together - Entering Expressions

| Your Answer | What to type in WeBWorK | Notes |
| :---: | :---: | :---: |
| $(9+5-6) \times 8$ | $(9+5-6)^{*} 8$ |  |
| $(9+5)-(6 \times 8)$ | $(9+5)-(6 * 8)$ |  |
| $2 \times x$ | 2 x or 2 x or $2^{*} \mathrm{x}$ or $2(\mathrm{x})$ |  |
| $\frac{2}{3 x}$ | 2/(3x) | NOT $2 / 3 \mathrm{x}$ which equals $\frac{2}{3} x$ |
| $(3 \times 10)^{2}$ | $(3$ * 10)^2 | NOT 3 * $10^{\wedge} 2$ which equals $3 \times 10^{2}$ |
| $5 \times 10^{-45}$ | $5 \times 10^{\wedge}-45$ | NOT $5 \times 10 \wedge(-45)$ |
| $\frac{3+5}{7 \times 12}$ | $(3+5) /(7 * 12)$ | NOT $3+5 / 7 * 12$ which equals $3+\frac{5}{7} \times 12$ |
| $\frac{2 x}{(5+3) \times 4}$ | $(2 x) /[(5+3) * 4]$ | NOT $2 \mathrm{x} / 5+3^{*} 4$ which equals $\frac{2 x}{5}+3 \times 4$ <br> Note the use of square brackets [] |
| $\frac{5 x-2}{3+(8+6) \times 7}$ | $(5 x-2) /\left[3+(8+6)^{*} 7\right]$ | NOT $5 x-2 / 3+8+6 * 7$ which equals $5 x-\frac{2}{3}+8+6 \times 7$ <br> Note the use of square brackets [ ] |

## Grouping with ( ) [ ] and \{ \} to Enter Complex Expressions

Use Parentheses: ( ) - Square Brackets: [ ] and Curly Braces: \{ \} to group.

- Example: to enter $\frac{1+2}{3(4+5)}$ do this in WeBWorK $[1+2] /[3(4+5)]$
- for $\frac{4}{2+5}$ don't enter $4 / 2+5$ (which is 7 ) when you really want $4 /(2+5)$ (which is $4 / 7$ ).
- Is $-5^{\wedge} 2$ positive or negative? It's negative! This is because the square operation is done before the negative sign is applied. Use $(-5)^{\wedge} 2$ if you want to square negative 5 .
- When in doubt use parentheses!!! :-)


## Miscellaneous

Use the "Preview Answer" button to see exactly how your entry looks.

- Example: to tell the difference between $1+2 / 3^{*} 4$ and $[1+2] /\left[3^{*} 4\right]$ click the "Preview Answer"** button.


## Only enter what the question asks for!

- Example: If the question says solve for $x$ and $x=5$ is the solution, only enter 5 , do not enter $x=5$.


## WeBWorK is case sensitive!

- Example: if the answer is $x=5$, do not enter $X=5 . x$ and $X$ are different!


## WeBWorK Specific Order of Operations

| Operator | Description | Order | Examples |
| :--- | :--- | :--- | :--- |
| ( ), [ ], \{ \} | Grouping | 1st |  |
| $\wedge$ or ** | Exponentiation | 2nd | WeBWorK exponents are taken right to left <br> so $2^{\wedge} 3^{\wedge} 4=2^{\wedge}\left(3^{\wedge} 4\right)=2^{\wedge} 81=$ a big number. <br> Note: this may not be the same as your <br> calculator! |
| - | negation (indicates that a <br> value is negative) | 3rd |  |
| * and / | Multiplication and Division | 4th | Multiplications and divisions are performed <br> left to right <br> $2 / 3^{*} 4=(2 / 3)^{*} 4=8 / 3$. |
| + and - | Addition and Subtraction | 5th | Additions and subtractions are performed <br> left to right <br> $1-2+3=(1-2)+3=2$ |

