

Improving teaching and learning:

Online homework systems are developed with the intention of improving teaching and learning.

This is accomplished as follows:

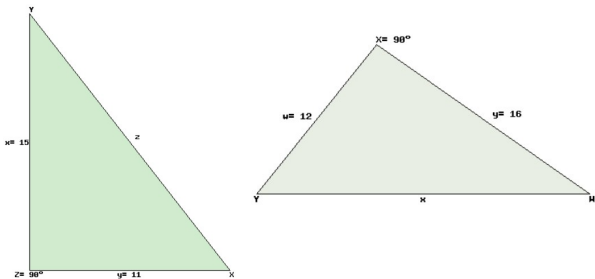
- Providing immediate feedback to the student.
- With adult learners, in particular, the manpower does not exist to look at every piece of work a student does; online homework systems give a student another motivation to do the amount of work that is required to learn the material.
- Automatic grading frees up time that instructors can use elsewhere.

The part-time salaries for workers in the Health Science Centre are \$30 , \$22 , \$25 , \$32.

Find the location of the 48 th percentile. $L_{48} =$

Find the 48 th percentile. S

Instant Feedback makes homework more effective.



Individualized versions ensure student involvement.

Often students become involved with their friend's example, thus reinforcing the concept.

Available Problems/Subject Areas

- Open Problem Library
WeBWorK comes with a Open Problem Library (OPL) of over 30,000 homework problems. Problems in the OPL target most **lower division undergraduate math courses** and some **advanced courses**.

- Acquired Elsewhere
Very recently Portland Community College has made available 1400 new problems suitable for **junior/senior high school**. With a little effort these can be made available to instructors. These will ultimately become part of the OPL

These can be previewed at:
http://www.teabun.ca/webwork2/NewMathProblems_BasicMath/
http://www.teabun.ca/webwork2/NewMathProblems_BasicAlgebra/
Log in a "guest"

- Instructor Written / Customized
The edit tool (pencil) exposes the underlying problem code for modification.

```
$k=random(3,$k-1) while($k==5);  
# exponents of z  
$q=$p;  
$q=random(5,20,1) while($q==$p);
```

Installation

Instructions are found at:
http://webwork.maa.org/wiki/Category:Installation_Manuals#.U-i4UrshSBs

A straightforward approach would be:
"nstalling_from_WW2.9_Ubuntu14.04_Vanilla_LiveDVD"

- buy a computer (64-bit)
 - WeBWorK runs on a LINUX operating system. Operating-system installation (LINUX, Microsoft Windows, OS(apple), etc) is typically designed to replace everything on the computer. (Other options exist but they require you to know more.)



- Download ".iso" and create installation disk.
- Insert disk into newly-acquired computer, reboot, and follow instructions.

The server can be accessed through the browser: