open education conference 24 it's about TIME

OCT 8-10 — PROVIDENCE, RI & ONLINE

Opening Assessment in Problem-Based Courses: A WeBWorK Pilot Case Study

PRESENTATION

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COLLEGE OF SCIENCE MATHEMATICS VIRGINIA TECH

UNIVERSITY LIBRARIES VIRGINIA TECH

UNDERGRADUATE ACADEMIC AFFAIRS VIRGINIA TECH

- What matters about homework software
- Open-source homework software
- Structuring a homework software replacement pilot program & results
- WeBWorK demo
- Hearing from Heath
- Discussion

1) What is the difference between a jungle and a rain forest?

- (●) a) No difference. Simply two different ways in referring to the same thing.
- ( ) b) A jungle in general receives less rain than a rain forest.
- ( ) c) A jungle refers to the thickest area of a rain forest
- ( ) d) A jungle and a rain forest each contain their own group of distinct plants and animals.

2) What is the world's most common religion?

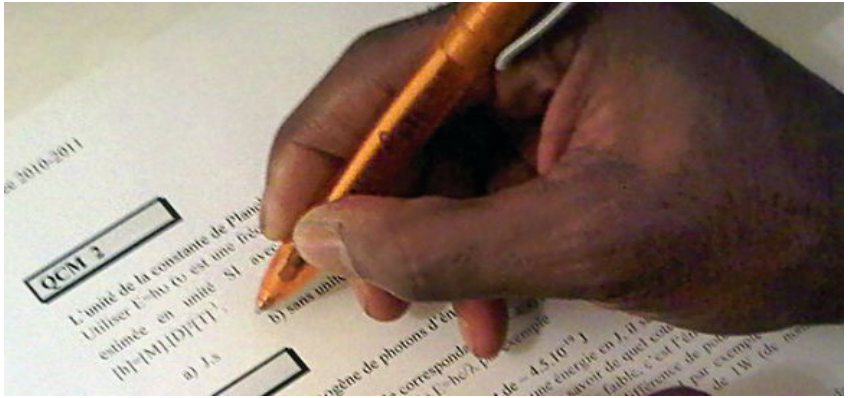
- ( ) a) Christianity
- (●) b) Buddhism
- ( ) c) Hinduism
- ( ) d) Muslim

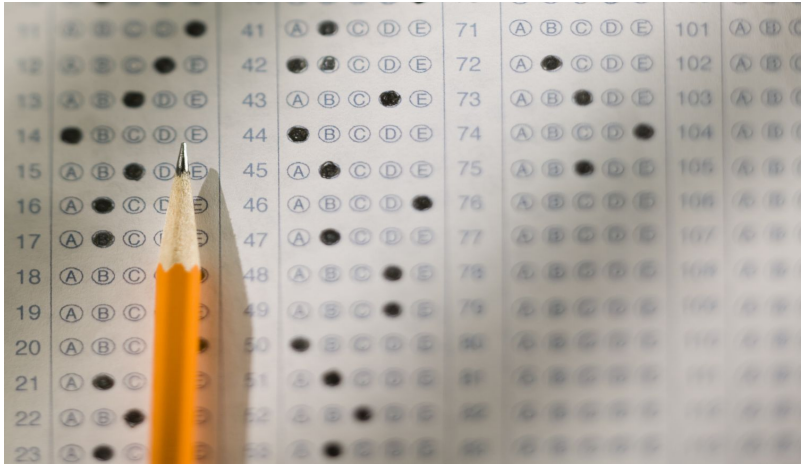
3) Which city ranks as the world's most populous city (2002)?

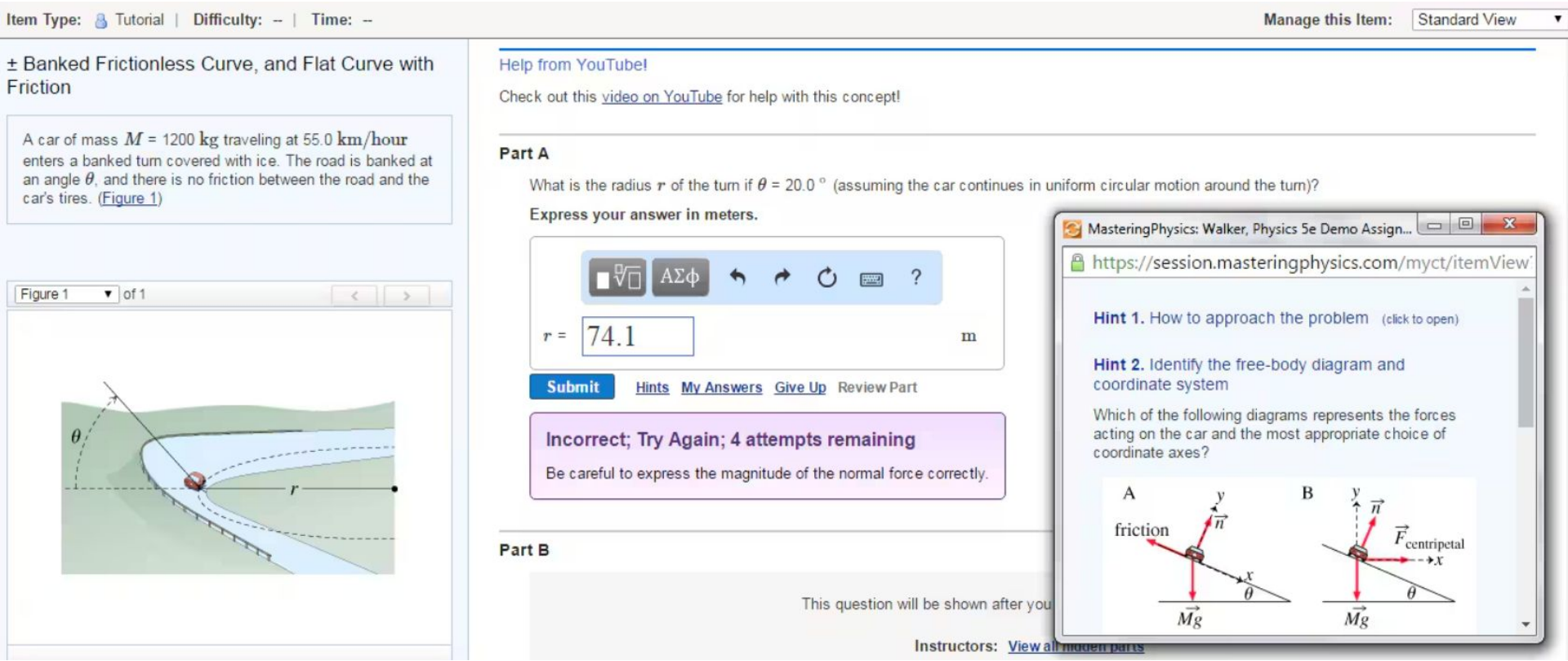
- ( ) a) New York (US)
- ( ) b) Mexico City (Mexico)
- (●) c) Tokyo (Japan)
- ( ) d) Shanghai (China)

4) What is the second largest country (in size) in the world?

- ( ) a) USA
- ( ) b) China







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https://mlm.pearson.com/northamerica/assets/upload/MasteringPhysics-tutorials.png?v1473871914

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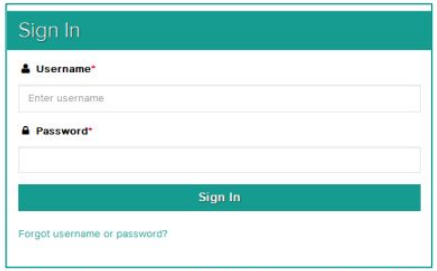
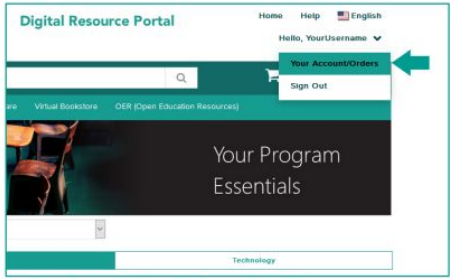
Finding a Homework Access Code

Or "Publisher Resource Code," or "Online Course Code," or "Digital Code"

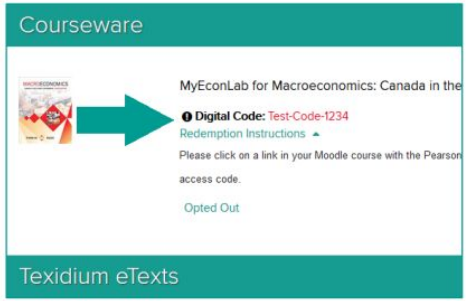


1. **Sign into your school's Digital Resource Portal (DRP).**
   Sign into the site where you ordered the product for which a code was issued.



2. **Go to your Orders & Downloads list.**
   Open the dropdown menu under your username, and click **Your Account/Orders** to reach a list of your orders.

3. **View your order details.**
   Click the **View Details** button next to your order for the digital course package to reach the Order Details page.



4. **Find your code.**
   You will find any digital codes issued with the order unde the Courseware section of the Order Details page. Speak to your course instructor for instructions on what to do with your code.

Adapted under fair use from: https://texidium.com/wp-content/uploads/HomeworkAccessCodes.pdf

Do homework systems improve student learning?

Trost S. & Saleh-Ifahani, D. (2012) The effect of homework on exam performance: Experimental results from principles of economics. *Southern Economic Journal* 79(1): 224-242.

The TIGER

Enter Search

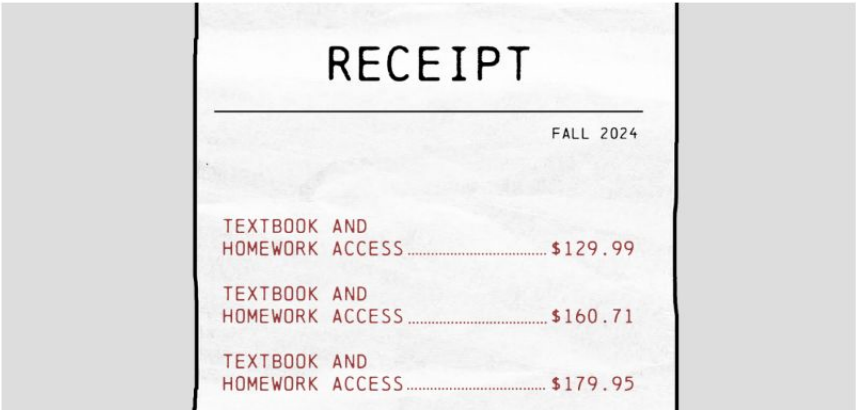
Sports TimeOut Opinion Multimedia Join Specials Staff About Advert

From the Editor's Desk Opinion Spotlight

From the Editor's Desk: Hundreds for homework is an unreasonable ask

Caroline Block, Editor-in-Chief

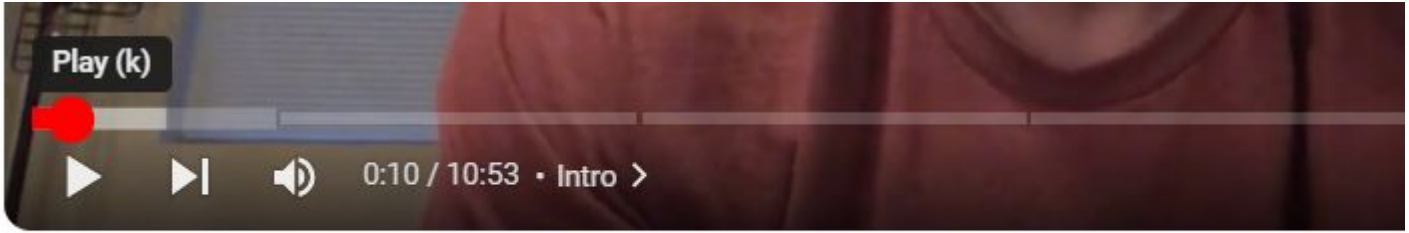
September 5, 2024



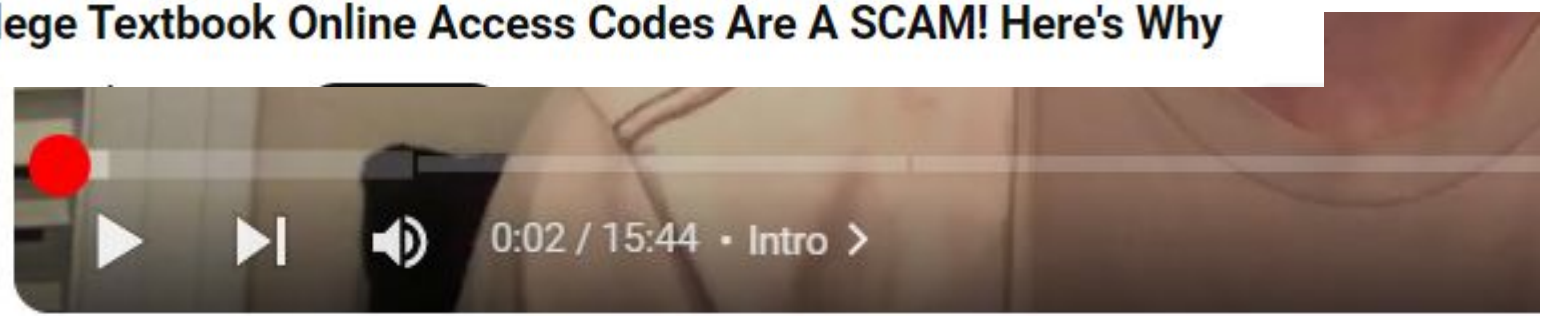
What are the costs of using homework software?

Clinton-Lisell, Virginia & Alison E. Kelly (2024). The cost of doing homework: Online homework systems with access codes from a social justice perspective. *International Journal of Technology in Education and Science* 8(2): 296-310.

YouTube



College Textbook Online Access Codes Are A SCAM! Here's Why



College Professor EXPOSES Online Access Code SCAM

https://youtu.be/AGI7XVxtOEY?feature=shared

https://youtu.be/nbgENnnzmVo?feature=shared

UNIVERSITY LIBRARIES
VIRGINIA TECH.

The Open Education Initiative (OEI) leads implementation of multiple homework software replacement projects at Virginia Tech. These projects are designed to:

- unbundle text and homework access code decision-making and purchase processes,
- expand faculty choice and control over regarding homework/assessment systems and curricular materials in general,
- reduce costs for students, and
- create opportunities for subject matter experts to collaborate in creation, review, and sharing of assessment strategies, tools, and content.

Current options:
WeBWorK
OpenTextResults (aka PressbooksResults)
Testbank development
Engineering assessment environment development

https://guides.lib.vt.edu/oer/homework

Released				
Fundamentals of Business testbank	377 multiple choice items			
Strategic Management	782 multiple choice items			
Electromagnetic Fields I & II	Four volumes of course problems & solutions			
Aerospace Structures	27 Canvas Quizzes			
Introductory Statistics	H5P (for participation grading)			
Under development				
Refreshed testbank for Fundamentals of Business				
Linear Algebra				
Statistics for Social Sciences				
Biological Statistics				
Chemistry				

Summary of Projects

Type of Grant	Book, Course, or Subject Area	Project Lead	Lead Institution	Resources Created
H5P (1)	*Writing for Success*	Brenna Clarke Gray	TRU	156 H5P
H5P (1)	*Psychology: H5P Edition*	Simon Lolliot	UBC	282 H5P
H5P (1)	*Introduction to Tourism*	Rebecca Wilson-Mah	RRU	59 H5P
H5P (1)	*Concepts of Biology* (1st Canadian edition)	Michelle Nakano and Charles Molnar	Camosun	80 H5P
H5P (1)	*Vital Sign Measurement Across the Lifespan*	Kymberley Bontinen	Douglas	122 H5P
H5P (2)	*Le Francis Interactif*	Mirabelle Tinio	Langara	229 H5P (in final review)
H5P (2)	*Technical Writing*	Deborah Neilsen	CNC	42 H5P
H5P (2)	*Physical Geology*	Karla Panchuk	UBC-O	200 H5P
H5P (2)	*Principles of Social Psychology*	Farhad Dastur and Hammond Tarry	KPU	25 H5P
H5P (2)	*Principles of Marketing*	Biggi Weischedel	TRU	78 H5P
H5P (2)	*Foundations of Digital Marketing*	Rochelle Grayson	Langara	18 H5P
STEM	*Organic Chemistry*	Jessie Key	VIU	240 ChemSketch
STEM	Math	Stefan Luktis	BCIT	90 WeBWork (in final review)
STEM	Math	Elyse Yeager	UBC	40 PrairieLearn
STEM	Physics	Firas Moosvi and Jake Bobowski	UBC-O	467 PrairieLearn
STEM	Biomechanical Engineering	Robyn Newell	UBC	98 WeBWork
Other	Philosophy	David Gilbert	UBC	278 Carnap

https://bccampus.ca/2022/08/01/open-homework-systems-project-wrap-up

Various options for open source or “lower-cost” homework

- OpenStax technology partners (discounted access) https://openstax.org/partners
- MyOpenMath https://www.myopenmath.com/info/aboutus.php
- LumenLearning - Online Homework Manager (OHM) https://www.lumenlearning.com/what/ohm
- PressbooksResults (PB, H5P, LMS integration) https://resources.pressbooks.com/results-pilot
- PrairieLearn https://www.prairielearn.com/
- LibreTexts ADAPT https://libretexts.org/platforms/adapt-open-homework
- WeBWorK https://openwebwork.org

Grant funding in this area

Program: National Leadership Grants - Libraries

Fiscal Year: 2024

Federal Funds : $248,235

City: Fairfax

State: VA

George Mason University (The Virtual Library of Virginia)

Log Number: **LG-256640-OLS-24**

Virginia's Academic Library Consortium, a state-funded consortium of 71 academic libraries, in cooperation with Software Services by Scientist.com (a software development company with a record of contributing to open-source software) and the Roy Rosenzweig Center for History and New Media (the developers of Zotero and Omeka), will scale the next phase of development of an open-source, learning management system (LMS)-integrated open educational resources repository for assessment, homework, and test-bank resources. This next phase of project development, which aims to ensure seamless integration with the four most popular LMS platforms, will seed the repository with extensive content, streamline the user-tested upload and permissions processes, and consider the best practices for artificial intelligence (AI) -generated and vetted problem sets.

WeBWorK

https://openwebwork.org

2.6 Quadric Surfaces: Problem 6

(1 point) Library/UMN/calculusStewartET/s_12_1_prob01/s_12_1_prob01.pg

Previous Problem | Problem List | Next Problem

This set is **visible**

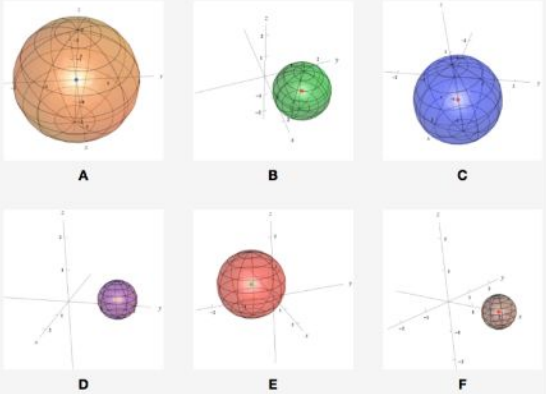
ANSWERS ONLY CHECKED -- ANSWERS NOT RECORDED

Results for this submission

Entered	Answer Preview	Result
B	B	correct
C	C	correct
D	D	correct
A	A	incorrect

At least one of the answers above is NOT correct.

Match the equations of the spheres with one of the graphs below.



B 1. $(x-1)^2+(y-1)^2+z^2=1$

C 2. $x^2+y^2+(z+1)^2=\frac{9}{4}$

D 3. $x^2-4x+y^2-4y+z^2-2z=-\frac{35}{4}$

A 4. $x^2-4x+y^2+z^2=-\frac{15}{4}$

WeBWorK Year 1 Pilot: Summer 2023 to Spring 2024

In Spring 2024 alone:

Over 1,065 students, 29 sections, and 15 unique faculty in Mathematics and Statistics departments used WeBWorK at Virginia Tech during Spring 2024. This is a 33% increase in students compared to Summer/Fall 2023.

100% of faculty using WeBWorK indicated that they would use it again (n=10)

Saved students at least $74,000 and potentially $110,000.

Some evidence of reduced DFW rates.

In Fall 2024 added four more courses, including Chemistry

WeBWorK (Feedback surveys Spring 2024)

100% of faculty adopters indicated they would use WeBWorK again

92% of students would like to see WeBWorK used again

Demo by Heath

Log in as “Guest”

https://webwork.lib.vt.edu/webwork2/test

Q&A with Heath Hart

Please provide a bit more context to the audience regarding why having WeBWorK available for your courses is **so important** to you?

How have you personally used WeBWorK these in years 1 & 2 of the pilot? What have you been able to accomplish?

And what type of response have you received from your department?

What kind of effort does this take for faculty adopters who are not leading the technical side of this project? In other words, what would you like potential adopters to know about this system?

What kind of effort has this taken for you as the system administrator — and what sort of support has been helpful to you in taking on that sort of work?

For what sorts of disciplines is this system ideally useful?

What are some of the really cool other features that might be helpful for people to know about?

Thank you and discussion

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