Corequisite Models Using OER: Reduce Cost and Increase Faculty Control

Low cost | Simple to Adopt | High academic ownership

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How do you define
Co-requisite College Algebra?

A. **Accelerated:**
8 weeks of Intermediate Algebra (IA) then
8 weeks of College Algebra (CA)

B. **Condensed:**
1-3 units of review material from IA then
Full College Algebra Course

C. **Just in Time**:
Full College Algebra Course with some IA
review material at the beginning of each
module

D. **Concurrent (Paired) Courses:**
Concurrent enrollment in IA and CA
Same or different instructors

E. **Concurrent (Support) Course:**
Emporium style course for IA review
Scheduled class times or drop in
Same or different instructors

F. **Others?**

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Coreq Models – Variations as categorized by Pathways Subgroup in Ohio (2018)

2. 101 Plus Model

Institutions with this model design the developmental education support largely as an extension of the "101" gateway course. This may also be called the extended instructional time model. The additional support may be delivered just-in-time or front-loaded within the gateway course. It may also vary in format or the inclusion of students who were not identified as needing developmental education supports.

101 Plus Variations	Just-in-Time Developmental	Front-loaded Instruction	Supplementary Recitation or Lab	Just-in-Time for All
Concurrent or Consecutive within Term	Concurrent	Consecutive	Concurrent	Concurrent
Course Structure	Single Course	Single Course	Single Couse	Single Course
Amount of time/credit	3-5 total credits	3-5 total credits	3-4 total credits	3-5 total credits

Some challenges facing community college math faculty

- Students placed in developmental math often do not complete the sequence

- Student knowledge of prerequisite material – varying levels

- Some students can't or won't buy the textbook/courseware

- Changing learning materials *can* be time consuming

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Quick Course Set-up in Lumen OHM

1 Choose a customizable template course

2 Review & adjust content to align with your course

3 Adjust due dates and settings to suit your course

4 Get help at any point from Lumen support

Template Courses for All Levels of Math

Seamless LMS Integration

Easy set-up

Single sign-on

Automatic grade return

Supported systems: Blackboard, Canvas, D2L Brightspace, Moodle

OHM Pricing & Payment Options

Payment Model	Standard pricing per student using OHM
Course Fee (collected by institution, per enrollment)	$25
Direct-to-Lumen Payment (collected by Lumen, per enrollment)	$25
Bookstore Activation Code (per enrollment)	$25*
Follett includED (streamlines course fee)	$25
Annualized Fee (per institution, pre-paid)	Negotiated based on current and projected usage

Campus stores may add additional markup; this is left to discretion of institutions

College Algebra with Corequisite Support

<u>Interactive</u> and Customizable Etext

https://courses.lumenlearning.com/albanytech-collegealgebracorequisite/chapter/inverse-functions/

DEMO and Sandbo...   Lumen Website Pa...   Editable Math Books   OHM - External   OHM - Internal   Corequisite   Adoption   DTL   Google Maps   Lumen Presentations   Collateral

Let's take a look at the problem shown above...

$$f(x) = x^3 - 4$$

$$g(x) = \sqrt[3]{x + 4}$$

We want to determine if the two functions are inverses of each other, so let's walk through each step.

What should be our first step in solving this Try It?

○ Find

$$f(g(x)) \text{ and } g(f(x))$$

○ Look for the same numerical values along with opposite operations.

○ Find

$$f(g(x))$$

✓ Check

1 / 5 ▶

⟳ Reuse   H·P

EXAMPLE: DETERMINING INVERSE RELATIONSHIPS FOR POWER FUNCTIONS

If $f(x) = x^3$ (the cube function) and $g(x) = \frac{1}{3}x$, is $g = f^{-1}$?

Show Solution

TRY IT

If $f(x) = (x - 1)^3$ and $g(x) = \sqrt[3]{x} + 1$, is $g = f^{-1}$?

Desmos in OHM

$f(x) = x \sin(x)$

$g(x) = \dfrac{d}{dx}\left(f(x)\right)$

Transformations

Learning about transformations with an interactive graph.

Steps

< >

1 Introduction to Transformations

2 Vertical and Horizontal Shifts

3 Vertical and Horizontal Shrinks & Stretches

4 Reflections

Intro to Transformations

What are transformations?

Given a base graph like **y=f(x)** , if you add, subtract, multiply or divide by a constant, the shape of the graph changes predictably. The way these graphs change is described by a set of rules called *transformations*.

In this activity, we explore how transformations relate to the arithmetic we see in the formula.
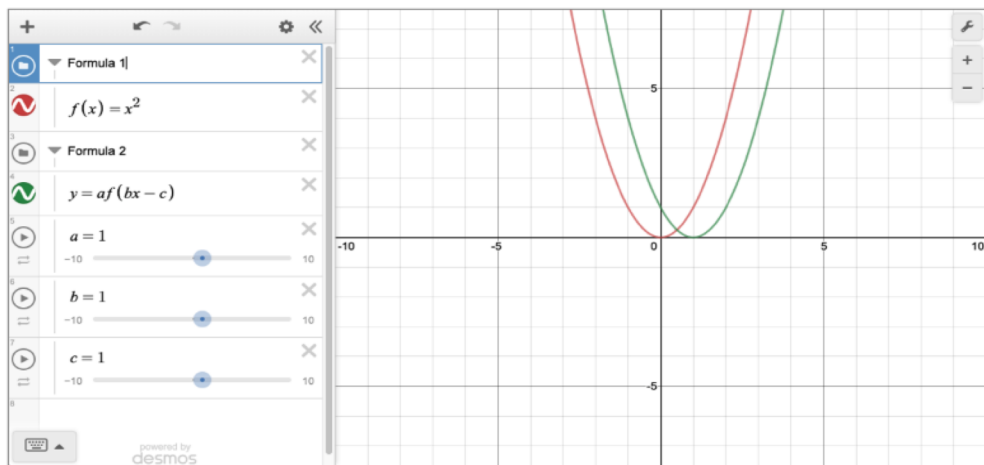
Add Desmos Interactive

Title

Transformations

Start Date

01/20/2018

Summary

Learning about transformations with an interactive graph.

End Date

05/28/2019

In Libraries: Transformations   Arithmetic   Algebra   [Select Libraries]

Steps

[Add]   [Delete]

1 ▾	Intro to Transformations
2 ▾	Vertical and Horizontal Shifts
3 ▾	Vertical and Horizontal Shrinks & Stretches

Edit ▾   Insert ▾   Formats ▾   **B**   *I*   U x_2 x^2 A ▾   A ▾
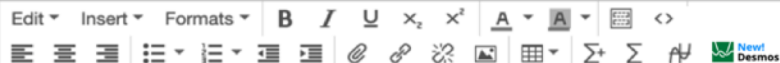
Vertical and Horizontal Shrinks & Stretches

What happens when we multiply by a non-negative constant?

Depending on whether the multiplication happens inside the function or outside the function, we see either shrinking or stretching horizontally or vertically, respectively.

Try playing with either the slider bars or animation to see if you can notice a pattern with how the graph is shifting.
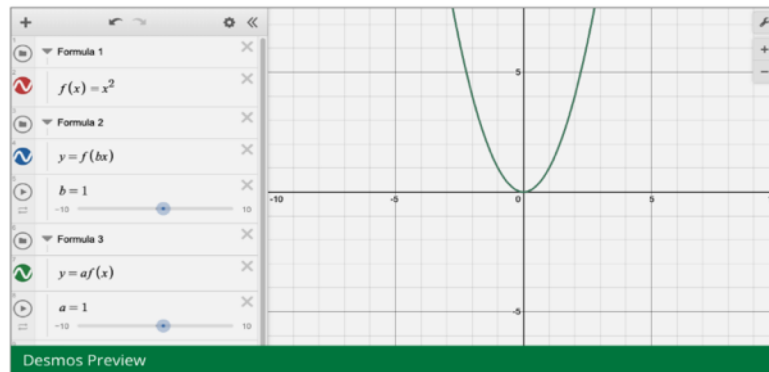
Formula 1

$f(x) = x^2$

Formula 2

$y = f(bx)$

$b = 1$

Formula 3

$y = af(x)$

$a = 1$

Desmos Preview

Course   Messages   Forums   Roster   Calendar   Gradebook

> Arithmetic > Assessment

Final Review

Score: 0/55   0/55 answered

● Question 1 ▼   ‹   ›

Subtract: 325 - 246

Question Help: ▶ Video   📗 Calculator

Submit Question

Course Messages Forums Roster Calendar Gradebook
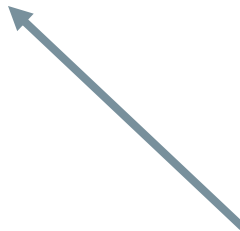
Home > Arithmetic > Assessment

Final Review

Score: 0/55   0/55 answered

Question 1 ◀ ▶

Subtract: 325 - 246   ✕

Question Help: ▶ Video   🖩 Calculator

Submit Question

main   abc   func   DEG

a^2 a^b $|a|$ 7   8   9   ÷   ⌫

√ $\sqrt[n]{}$ π   4   5   6   ×   %

sin   cos   tan   1   2   3   − $\frac{a}{b}$

(   )   ,   0   .   ans   +   ↵

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Course Messages Forums Roster Calendar Gradebook

Final Review

Score: 0/55   0/55 answered

Question 1 ▼   ‹   ›

Subtract: 325 - 246

Question Help: ▶ Video   🔧 Calculator

Submit Question

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7	8	9	×
4	5	6	−
1	2	3	+
0	.	ans	↵

clear all

Some Institutions Currently Using Lumen OHM

More Questions?

Live Demo of an OHM Course

if time permits