

Promoting the Use of Multiple Representations in the College Algebra Classroom

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About me



What is a representation of math?

- Description of mathematical truth



Multiple representations matter

- Our students have various learning styles
 - >> What is a day in the classroom like for them?



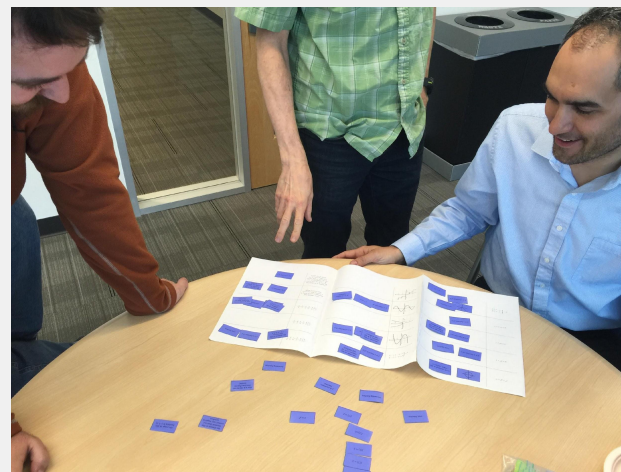
Representations of functions

- Equations
- Written statements
- Graphs
- Dynamic computer activities
- Verbal descriptions
- Tables



Integrating Multiple Representations in the classroom

- TACTivities
- Synthesis
- Guided lectures
- TECHtivities

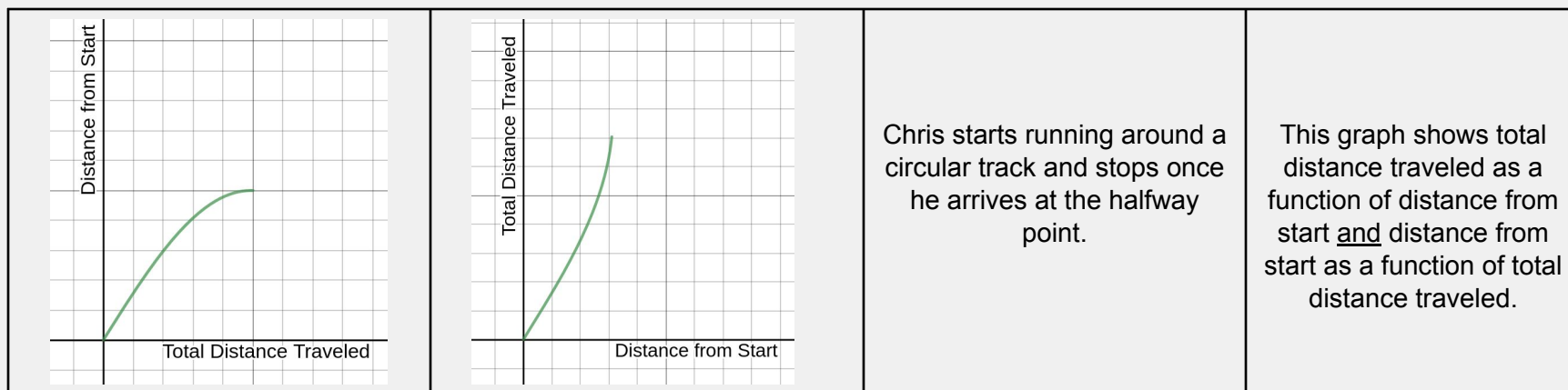


Scaffolded activities promoting Multiple Representations

- Covariational Reasoning
 - >> TACTivity and TECHtivity
- Transformations
 - >> Desmos-based Synthesis
- Rational Functions
 - >> Desmos-based guided lecture and TACTivity

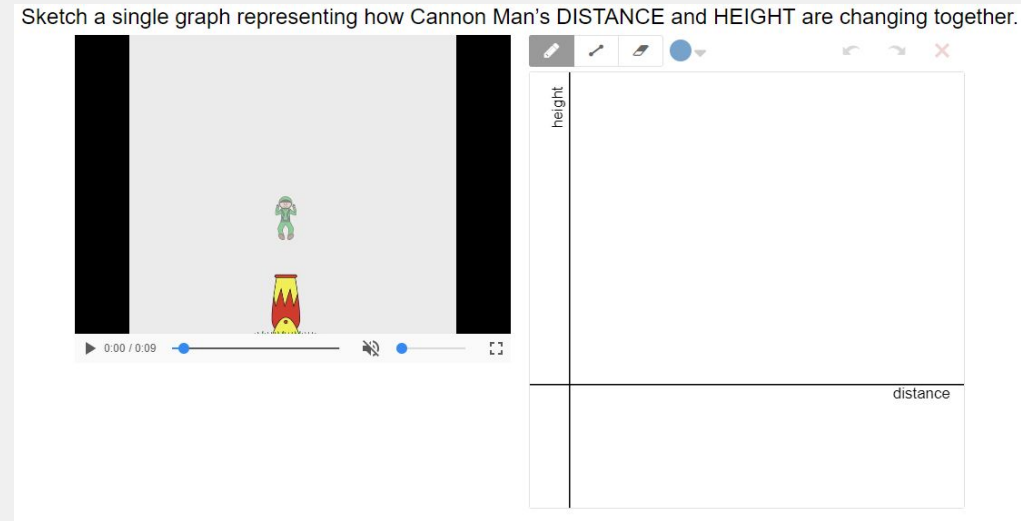


Covariational Reasoning TACTivity



Covariational Reasoning TECHtivity

- Second level of scaffolded approach
- Interactive representations
 - >> Dynamic graphs
 - >> Animations



All TECHtivities Available at [Itscore.cu.studio](https://itscore.cu.edu/studio)



Synthesis Activity in Desmos

- Assignment or in-class
- Produce representations

Problem 2. (*Ch.1 Sec.6, Not in textbook*) Consider the function

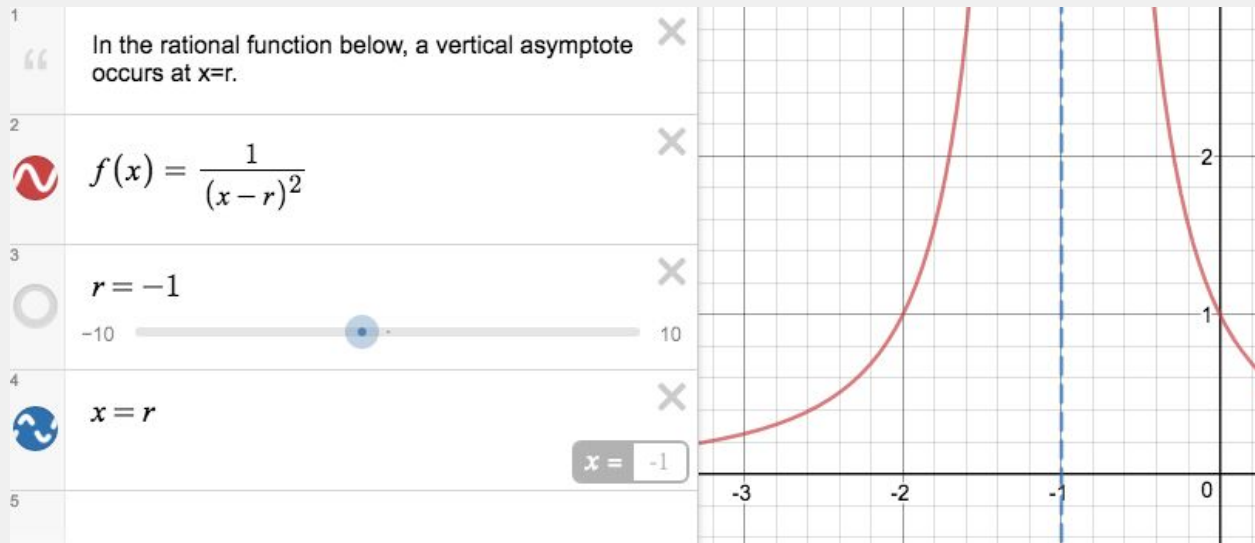
$$f(x) = x^3.$$

Using a graphing utility of your choice (eg: Desmos, TI graphing calculator), graph:

- (a.) the original function, $f(x) = x^3$
- (b.) any vertical shift of $f(x)$
- (c.) any horizontal shift of $f(x)$

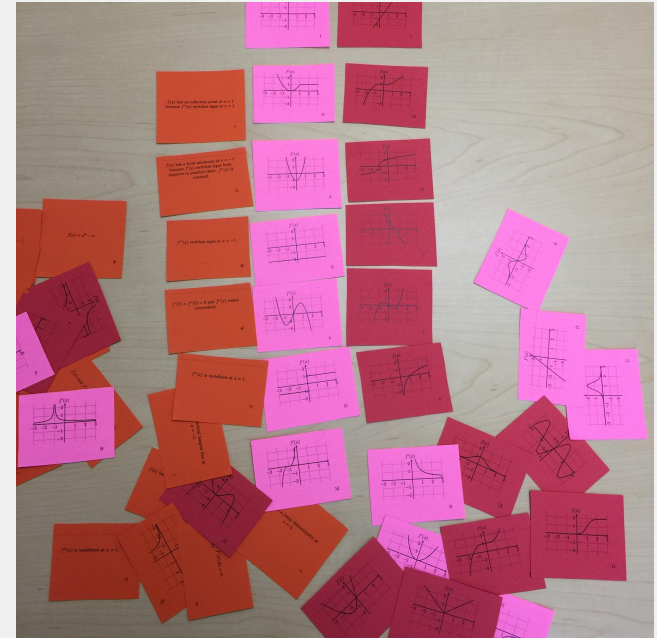


Guided Lecture in Desmos



Matching TACTivity

- Second level of scaffolded approach
- Match representations



Including Multiple Representations every class meeting

- Use Desmos instead of drawing graphs on the board
- Assign problems to groups, follow up with gallery walk
- Lead discussions before or after an activity
- Ask for additional representations in homework
- Find time for a “drop-in” activity during class



Thank you!

Questions?

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