ICTCM 2020

32nd International Conference on Technology in Collegiate Mathematics

VIRTUAL CONFERENCE

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Semi-flipped: Small Steps with Underprepared Students
Bloomsburg University

- 3rd largest of 14 public universities in the Pennsylvania State System of Higher Education
- 57 undergraduate degree programs with more than 66 minors
- 19 graduate degree programs
- 8,924 students
Department of Academic Enrichment

- Offer for-credit bridge courses in reading and writing
- Non-credit developmental math for all students not placing into foundational or program required math
- Mindfulness and College Reading & Study Skills courses (for-credit)
- Tutoring Services, TRiO Student Support Services, TRiO Upward Bound, Military, Diversity and Retention, Academic Advisement, and Frederick Douglass Institute
ENRICH 80 & 90: Fall 2019/Spring 2020

<table>
<thead>
<tr>
<th>Course</th>
<th>Enrolled</th>
<th>ACT 101/EOP</th>
<th>Undeclared</th>
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<tr>
<td>ENRICH 80</td>
<td>321</td>
<td>85</td>
<td>204</td>
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<tr>
<td>Introductory Algebra</td>
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<td>ENRICH 90</td>
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<td>Intermediate Algebra</td>
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Session Topics

• Why?
• Semi-flipped
• Preliminary Data
• Pros
• Cons
• Considerations
Why?

• Lacked
  – Interaction
  – Note-taking skills
  – Understanding of basic terms
  – In-depth problems
Semi-flipped

- **Pre-class**
  - (Modeling, Pre-assessment)

- **In-class**
  - (Clarifying concepts, Solving problems)

- **Post-class**
  - (Assessment, Application, Transfer)
Do Homework

Name: HW U4L3
Due: 04/22/20 10:00am
Current Score: 0% (0 points out of 7)
Attempts: 3 per question
Late Submission 100% deducted from questions completed after due date

View the media files and questions listed below in the order listed. Questions that are not clickable will become available when you have viewed the required media.

<table>
<thead>
<tr>
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<th>Scored Media: 0</th>
<th>Questions: 6</th>
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<td></td>
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<td>Question 1 (0/1)</td>
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<td>Question 2 (0/1)</td>
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<tr>
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<td>Question 3 (0/1)</td>
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<td>Question 4 (0/1)</td>
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<td>8.2 Obj 1 Solve Quadratic Equations by Using the Quadratic Formula (0/1)</td>
<td>Question 5 (0/1)</td>
<td>Question 6 (0/1)</td>
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🔗 Skill Builder is available to help just when you need it.
ENRICH 90 MWF

April 22nd

1. To apply the quadratic formula, a quadratic equation must be written in the form
   \[ax^2 + bx + c = 0\] where \(a \neq 0\).

2. To apply the quadratic formula to solve the equation \(8x^2 - 42x - 27 = 0\), the value of \(a\) is \(\_\_\_\_\_,\) the value of \(b\) is \(\_\_\_\_\_,\) and the value of \(c\) is \(\_\_\_\_\_.\)

Solve Using the Quadratic Formula

If a quadratic equation does not factor easily, use the quadratic formula.

\[ax^2 + bx + c = 0 \text{ where } a, b, c \text{ are real numbers and } a \neq 0 \text{ then}\]

\[x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}\]

1. Set the equation in \(ax^2 + bx + c = 0\) ___________ ____________
2. Identify \(\_\_\_\_, \_\_\_\_,\) and \(\_\_\_\_\_\_\_\_.\)
3. ___________ the values into the quadratic formula
4. Simplify

Best Method?

The equation \(x^2 - 49 = 0\) can be solved by using the ___________ ___________ property, by
___________, or the ___________ ___________. Which method makes the most sense?
U4L4 Additional Problems

Solve using the quadratic formula.

1. $2x^2 + 9x = -10$

   Is there another method you could use for this one? If so, see if you obtain the same result.

2. $y^2 + 4 = 6y$

3. $\frac{1}{5}x^2 + x + \frac{3}{5} = 0$
Do Homework

Name: HW U4L4
Due: 04/24/20 10:00am
Current Score: 0% (0 points out of 12)
Attempts: 3 per question

Late Submission Penalty: 100% deducted from questions completed after due date

View the media files and questions listed below in the order listed. Questions that are not clickable will become available when you have viewed the required media.

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- Question 1 (0/1)
- Question 2 (0/1)
- Question 3 (0/1)
- Question 4 (0/1)
- Question 5 (0/1)
- Question 6 (0/1)
- Question 7 (0/1)
- Question 8 (0/1)
- Question 9 (0/1)
- Question 10 (0/1)
- Question 11 (0/1)

6.5 Obj 1 Solve Equations Containing Rational Expressions (0/1)
# Preliminary Data

## Exam Averages: Intermediate Algebra

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<tr>
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<th>Unit 1 Exam</th>
<th>Unit 2 Exam</th>
<th>Unit 3 Exam</th>
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<tr>
<td><strong>Fall 2017</strong></td>
<td>80%</td>
<td>78%</td>
<td>66%</td>
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<tr>
<td><strong>Spring 2018</strong></td>
<td>77%</td>
<td>74%</td>
<td>55%</td>
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**Semi-flipped Implementation**

<table>
<thead>
<tr>
<th></th>
<th>Unit 1 Exam</th>
<th>Unit 2 Exam</th>
<th>Unit 3 Exam</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall 2019</strong></td>
<td>90%</td>
<td>79%</td>
<td>68%</td>
</tr>
<tr>
<td><strong>Spring 2020</strong></td>
<td>82%</td>
<td>76%</td>
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*One year gap due to an experimental course.*

Pearson
Pros

• Time to check in with every student
• Collaboration
• Work towards more difficult problems quicker
• Lessons help with notetaking
• Study skills for other courses

*Conversion to online learning for remainder of semester
Cons

• Not every student watches the videos
• Don’t take notes during videos
• Don’t work on lesson during class
• Some students don’t like to collaborate
What has helped?

• Author’s videos (short)
• Syllabus statement – how class is taught
• Combined homework with prework as one assignment
• Inclusive access
Considerations

• Know your students
• What content makes sense to flip?
• How will the outside of the classroom content be delivered and how much?
• What will the classroom activity look like to replace the ‘lecture’?
• How will learning be assessed?
Contact Information

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Bloomsburg University of PA

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