

A New Model for Remediation and Student Success

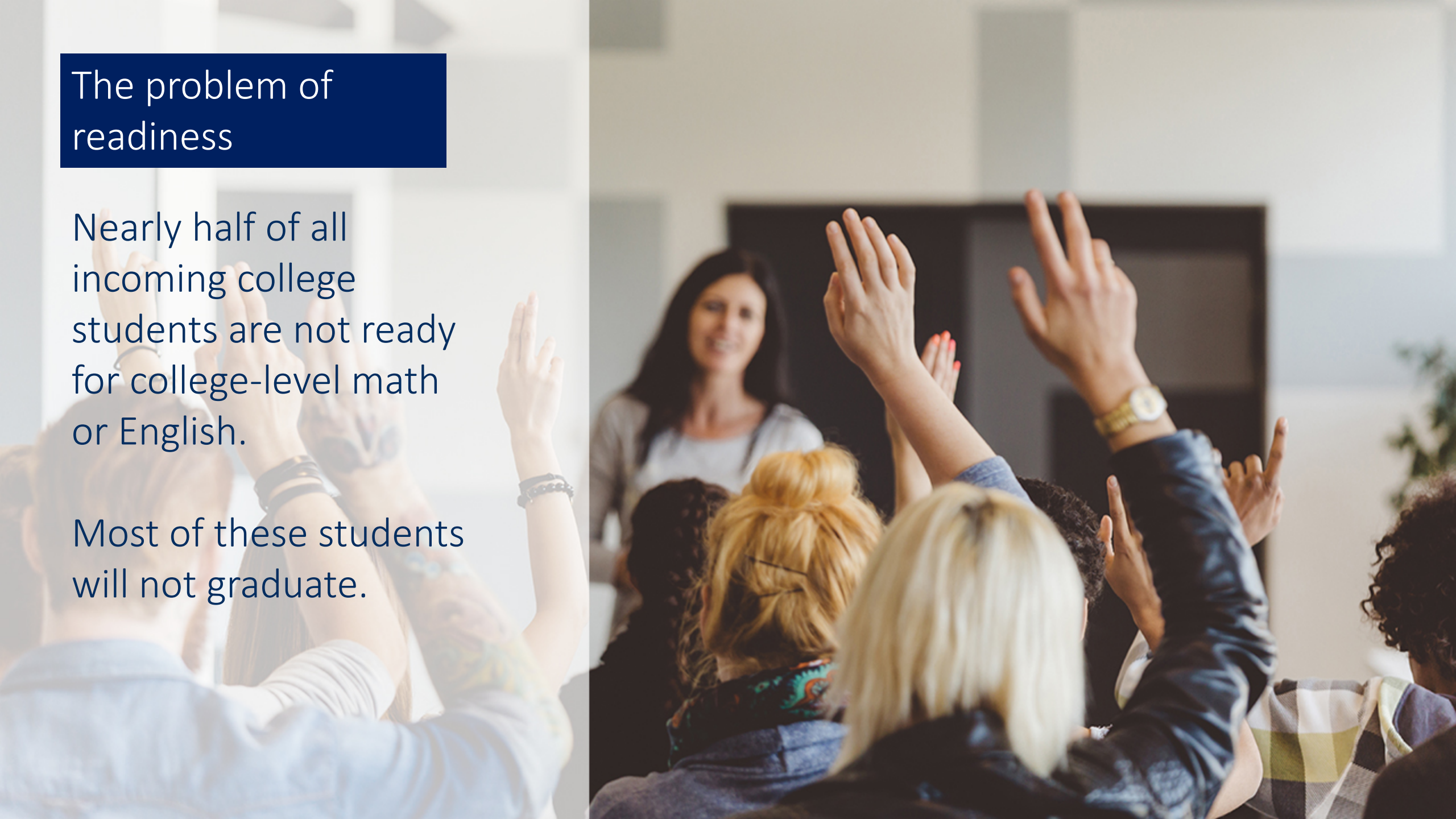
Dr. Jan Case, Jacksonville State University



The problem of readiness

Nearly half of all incoming college students are not ready for college-level math or English.

Most of these students will not graduate.



Think Different



We asked our selves: how can
we reduce barriers to
readiness and completion?

And...increase the focus on
student success...not just
placement.



Think Different

Traditional Placement

Cut scores – pass/fail



Target scores with a way to improve

One-time assessment



Unlimited 12 month use to improve

Focus on placement



Focus on readiness, and completion

High stakes placement exams



Low-stakes non proctored diagnostic exam with customized study path

Another gate for students



A way to bridge gaps without delay

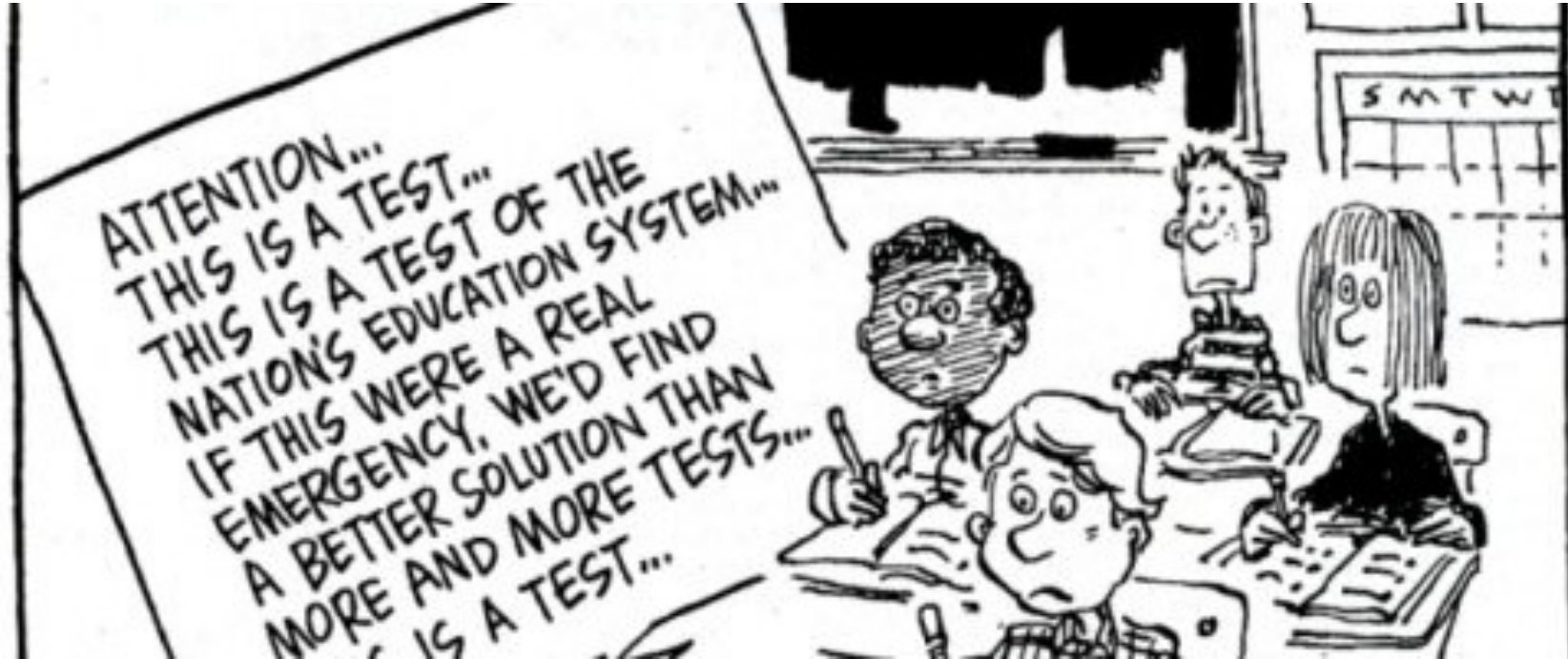
We wanted a student success and learning tool... not simply a placement tool

- Step 1: Inventory/diagnose math (19) (also just added English (10) skills diagnosed)
- Step 2: Follow customized path to readiness
 - Target Score or better = college ready = no study path needed
 - Any other scores = personalized study path = chance to retest to demonstrate mastery of skill



- Goal 1: **student is prepared** for college-level coursework for math and English prior to registration
- Goal 2: increases current college students chances to succeed and accelerates their pathway to degree/certification completion

High-Stakes Testing



Jacksonville State University



- *8151 Students Fall 2017*
- *83% on Financial Aid*
- *Almost a third are first generation college students*



Jacksonville State University



- *Admission Standards:*
 - *Conditional Acceptance*
 - *18-19 ACT Composite*
 - *870-942 SAT (Reading/Math)*
 - *Unconditional Acceptance*
 - *20+ ACT Composite*
 - *950+ SAT (Reading/Math)*

The Need



The State Department of Education in Alabama reports that over 75% of the state's 8th graders and over 80% of 10th graders are in need of remediation in mathematics.

JSU's Situation



- **50% Failure Rate in Developmental Mathematics followed by a 50% failure rate in College Algebra**
- **Attempts at placement:**
 - **Departmental Test**
 - **Compass**
 - **ACT**
 - **Replace a high stakes test with personalized learning materials.**

JSU EdReady Collaboration

- 1. NROC built the EdReady software.**
- 2. JSU MCIS Department and Learning Services:**
 - 1. Chose the Learning Objectives to fit our courses**
 - 2. Assisted EdReady in designing assessments with these objectives**
 - 3. Piloted EdReady**
 - 4. Redesigned Developmental Algebra**
 - 5. Coordinated with administration, Orientation, student services, dual enrollment, IT, & more.**
 - 6. Implemented the program Summer 2015**

The NROC Project (aka Hippocampus)

- **A non-profit, open educational resource project of The Monterey Institute for Technology and Education**
- **Funded by**
 - **The William and Flora Hewlett Foundation**
 - **The Bill and Melinda Gates Foundation**
 - **Supporting Institutional Members from the Academic Community**
(JSU has been a member institution since 2011.)



EdReady as Low Stakes Placement



If you want to improve your math skills, place into a higher math, save time and money, JSU EdReady is for you!

Who Takes JSU EdReady?
All incoming freshmen and transfer students who have not completed their first required math take JSU EdReady (Students with AP credit and dual enrollment may be exempt).

What Does the JSU EdReady Math Placement Score Mean?
A passing score places you in the first math required for your major. If you do not attain a passing score initially, you can work through your individual study path until you reach the target score for your course.

For more information and directions to take the JSU EdReady Math Placement Exam, scan the QR Code, or visit www.jsu.edu/mcis/mathplacement.html



How do I take the placement test?

Mathematics Placement by Score

What math do I need for my major?

Other Frequently Asked Questions



Q. My Math Placement Test score isn't as high as I expected. Can I keep working to improve my score?

A. Yes. Once you complete the initial placement, EdReady generates an individual study path for you. You must complete your study path that includes watching videos, reading the topic text, completing practice problems and passing the quizzes. Once you reach the placement score for your target class, you will be eligible to enroll in the math required for your major.

Example: Unit Overview within LMS

Unit 1 - Whole Numbers

Lesson 1: Introduction to Whole Numbers

Learning Objectives

Topic 1: Place Value and Names for Whole Numbers

Topic 2: Rounding Whole Numbers

Topic 3: Comparing Whole Numbers

Lesson 2: Adding and Subtracting Whole Numbers

Learning Objectives

Topic 1: Adding Whole Numbers and Applications

Topic 2: Subtracting Whole Numbers and Applications

Topic 3: Estimation

Lesson 3: Multiplying and Dividing Whole Numbers

Learning Objectives

Topic 1: Multiplying Whole Numbers and Applications

Topic 2: Dividing Whole Numbers and Applications

Lesson 4: Properties of Whole Numbers

Learning Objectives

Topic 1: Properties and Laws of Whole Numbers

Topic 2: The Distributive Property

Lesson 5: Exponents, Square Roots, and the Order of Operations

Learning Objectives

Topic 1: Understanding Exponents and Square Roots

Topic 2: Order of Operations

Tutor Sim: Shopping for Office Supplies

Puzzle: Which Comes First?

Team Project: Open for Business

Unit 1 Quiz - not available in this preview

Unit 1 Glossary

Order of Operations

Topic Home

Warm Up

Presentation

Worked Examples

Practice

Review

Topic Text

Warm Up

Presentation

Order of Operations

Topic Home

Warm Up

Presentation

Worked Examples

Practice

Review

Topic Text

Simplify $12 + (5 - 1) \cdot 3^2 - 8 \div \sqrt{4}$

$$12 + 4 \cdot 3^2 - 8 \div \sqrt{4}$$

$$12 + 4 \cdot 9 - 8 \div 2$$

$$12 + 36 - 4$$

$$3^2 = 3 \cdot 3 = 9$$

$$4^0 = 1$$

$$x \div$$

$$x + -$$

$$\sqrt{4} = \sqrt{2 \cdot 2} = 2$$

Multiplying Fractions and Mixed Numbers

Topic Home

Warm Up

Presentation

Worked Examples

Practice

Review

Topic Text

Topic Text

Topic Terms

Glossary

Point Slope Form

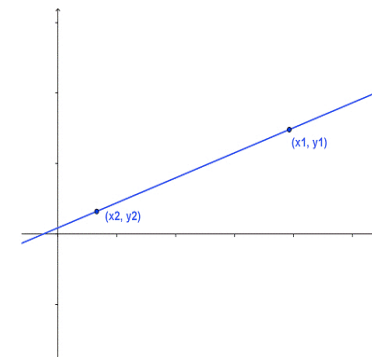
One type of linear equation is the point slope form, which gives the equation of a line as $(y - y_1) = m(x - x_1)$. In this equation, m is the slope of the line, and (x_1, y_1) is a point on the line.

Let's look at where this point-slope formula comes from. Here's the

slope
the ratio of the vertical and horizontal changes between two points on a surface or a line

it. The point slope form of a point.

in it.



The slope of the line is "rise over run." That's the vertical change between the two points (the difference in the y -coordinates) divided by the horizontal change over the same segment (the difference in the x -coordinates). This can be written as $m = \frac{y_2 - y_1}{x_2 - x_1}$. This equation is

GEM: Inbox (1) Blackboard Learn www.montereyinstitute.org Facebook

www.montereyinstitute.org/courses/DevelopmentalMath/U02L1T1_RESOURCE/topicText.html

Apps JSU HAWKES - Login Blogs NROC Radio/Video Sporcle Games Lose It! Facebook Twitter / Home (6) Jan Pinterest Regions | Personal ... Virtual Lab in Prob a... Other bookmarks

Topic Text Topic Terms Glossary Spanish Text

Introduction to Fractions and Mixed Numbers

Learning Objective(s)

- Identify the numerator and denominator of a fraction.
- Represent a fraction as part of a whole or part of a set.

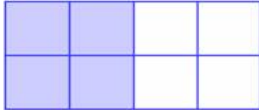
Introduction

Many problems in mathematics deal with whole numbers, which are used to count whole units of things. For example, you can count students in a classroom and the number of dollar bills. You need other kinds of numbers to describe units that are not whole. For example, an aquarium might be partly full. A group may have a meeting, but only some of the members are present.

Fractions are numbers used to refer to a part of a whole. This includes measurements that cannot be written as whole numbers. For example, the width of a piece of notebook paper is more than 8 inches but less than 9 inches. The part longer than 8 inches is written as a fraction. Here, you will investigate how fractions can be written and used to represent quantities that are parts of the whole.

Identifying Numerators and Denominators

A whole can be divided into parts of equal size. In the example below, a rectangle has been divided into eight equal squares. Four of these eight squares are shaded.



The shaded area can be represented by a fraction. A fraction is written vertically as two numbers with a line between them. The **denominator** (the bottom number) represents the number of equal parts that make up the whole. The **numerator** (the top number) describes the number of parts that you are describing. So returning to the example above, the rectangle has been divided into 8 equal parts, and 4 of them have been shaded. You can use the fraction $\frac{4}{8}$ to describe the shaded part of the whole.

4 ← The numerator tells how many parts are shaded.

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1:51 PM 5/8/2014

JSU has developed a workbook with corresponding practice problems to be worked out with pencil and paper. This resource has been shared with the NROC community.

The Process



Students take an un-proctored, online mathematics evaluation before their scheduled orientation.

A personalized study plan is created and students are given the opportunity (if needed) to improve their initial score to the mastery level required for their college math class.

If unable to complete the mastery, they may enroll in a developmental math course (once!) and receive assistance from instructors.

If mastery is not achieved by the end of the semester, students continue in an Emporium setting to complete the process.

How's It Working?

- Students placed by EdReady were significantly more likely to pass their subsequent college math class with a grade of C or better than students placed by prior methods ($p=0.011$).
- Students placed by EdReady were significantly less likely to withdraw or receive grades of Incomplete for their college math class ($p=0.008$).

How Much Better?

- **Before:** STEM majors who completed developmental math passed college math at a rate of 52.6%
- **After:** STEM majors who completed the EdReady placement path passed college math at a rate of 74.3% the first year and 79.3% the second year.



Basis for comparison Fall 2015		EdReady placement	Traditional placement
Passing grades (A-C)	Combined	74.3%	66.3%
	STEM	76.1%	63.0%
	Non-STEM	68.4%	72.2%
Withdraw or Incomplete	STEM	6.2%	10.9%
	Non-STEM	8.9%	10.6%



Basis for comparison Fall 2016		EdReady placement
Passing grades (A-C)	Combined	79.3%
	STEM	67.9%
	Non-STEM	81.9%

Of the STEM majors who passed, 42.6% made As.

Initial vs Worked Placement

(both low stakes, un-proctored)

- 12% of students who took college algebra achieved an adequate initial placement score
- 88% started with an inadequate initial placement score and worked independently to raise their score
- There was no significant difference in the percentage who passed with a grade of C or better ($p=0.334$)

Current Status



Low stakes placement is now the norm at JSU and the majority of students are able to avoid taking a developmental math course, thus saving time and money.

JSU has reduced the number of developmental math courses offered each year from 35 to 15.

STEM majors are experiencing greater success in College Algebra.



Administrative Tools

Math

English

EdReady

Student & Administrator Experience



[Dashboard](#)

What do you want to be ready for?

ACT CollegeReady™ will help you prepare for college and career goals.
Institution can add one sentence here if desired for further context.

College Math



[MORE INFO](#)

[GO TO GOAL](#)

College English



[MORE INFO](#)

[GO TO GOAL](#)



Study Path



College Math

Complete the initial diagnostic assessment below.
Expect this to take about an hour.



ACT CollegeReady™ Math

[Overview](#) >

START DIAGNOSTIC



Study Path

ACT CollegeReady[™] Math

ACT CollegeReady[™] Math

You will be taking an initial diagnostic to gain an understanding of your college math readiness.

Answer the questions as best you can, without study aids, in order to get the most accurate picture of your current understanding.

There is no built-in calculator for ACT CollegeReady. Some exams (e.g. Accuplacer) allow the use of calculators for some problems, but not others. Use your judgment (or ask your teacher) to decide whether it is appropriate to use a calculator for some or all of this diagnostic.

The time of completion will vary. Expect to take about an hour.

If you need to leave before your diagnostic is complete, your work will be automatically saved until your next visit to ACT CollegeReady.

START NOW

LATER



Study Path

ACT CollegeReady™ Math

All sections are complete



You have completed the initial diagnostic.

VIEW RESULTS



Study Path



College Math

You have completed the initial diagnostic. Review the list below for an overview of your level of mastery, then go to your study path.



ACT CollegeReady™ Math

Overview

Units you should study:

Whole Numbers	NEEDS REVIEW
Fractions and Mixed Numbers	NEEDS REVIEW
Decimals	NEEDS REVIEW
Ratios, Rates, and Proportions	NOT READY
Percents	NEEDS REVIEW
Geometry	?
Real Numbers	NEEDS REVIEW
Solving Equations and Inequalities	NEEDS REVIEW
Exponents and Polynomials	NOT READY
Factoring	NOT READY
Graphing	NOT READY
Systems of Equations and Inequalities	NOT READY
Rational Expressions	NOT READY
Radical Expressions and Quadratic Equations	NOT READY
Functions	?

ACT[™] CollegeReady[™]

Abigail Avery

Study Path

ACT

0

25

100

Master this unit to improve

Whole N

Recommended

NE

Topics you need to stu

Adding Wh

NE

Subtracting

NE

Estimation

NE

Multiplying Whole Numbers and Applications

Expand your knowledge

OR

Check your knowledge

LEARN

TEST

Dividing Whole Numbers and Applications

Expand your

Check your

Welcome to your Study Path!

The units you need to study to reach your **Target Score** are shown on the score bar at the top of the page. The units are shown in a suggested order of study, but you may study in any order you like.

Choose **Learn** to study the recommended topics. You may want to **Test** first for any topic (or the whole unit) to be sure you really need to study the material. Either way, be sure to Test after you've studied to see if you have now mastered the material. You may Learn and Test as many times as you need.

As you master the topics (and units), they will move off of your **Study Path** to the lists on the right-hand side and your **CollegeReady score** will rise. Master all of the material in your Study Path to reach your Target Score!

Close

You have mastered 3 of 12 topics in this unit

Place Value and Names for Whole Numbers

Rounding Whole Numbers

Comparing Whole Numbers

Additional units you could study

Measurement

NOT READY

Concepts in Statistics

NOT READY

Trigonometry

NOT READY

33



Study Path

ACT CollegeReady™ Math



Master this unit to improve your score:



Whole Numbers

Recommended study time: 3 hours

NEEDS REVIEW

UNIT TEST

You have mastered 3 of 12 topics in this unit

- ☒ Place Value and Names for Whole Numbers
- ☒ Rounding Whole Numbers
- ☒ Comparing Whole Numbers

Additional units you could study

Measurement

NOT READY

Concepts in Statistics

NOT READY

Trigonometry

NOT READY

Topics you need to study in this unit:



Adding Whole Numbers and Applications

NEEDS REVIEW

Expand your knowledge

OR

Check your knowledge

LEARN

TEST



Subtracting Whole Numbers and Applications

NEEDS REVIEW

Expand your knowledge

OR

Check your knowledge

LEARN

TEST



Estimation

NOT READY

Expand your knowledge

OR

Check your knowledge

LEARN

TEST



Multiplying Whole Numbers and Applications

?

Expand your knowledge

OR

Check your knowledge

LEARN

TEST



Dividing Whole Numbers and Applications

Expand your knowledge

Check your knowledge



Adding Whole Numbers and Applications

← BACK TO STUDY PATH



Adding Whole Numbers and Applications

? Help

Glossary

2 Presentation



Addition






Adding Whole Numbers and Applications

← BACK TO STUDY PATH



Adding Whole Numbers and Applications

? Help

Glossary

3 Worked Examples

Problem: $46 + 43 = ?$

$$\begin{array}{r} 46 \\ + 43 \\ \hline 89 \end{array} \quad \begin{array}{r} = 40 + 6 \\ = 40 + 3 \\ \hline 80 + 9 \end{array}$$



◀ 1 of 4 ▶

Adding Whole Numbers and Applications

← BACK TO STUDY PATH



Adding Whole Numbers and Applications

4 Topic Text

English

Spanish

? Help

Glossary

Adding Whole Numbers and Applications

Learning Objective(s)

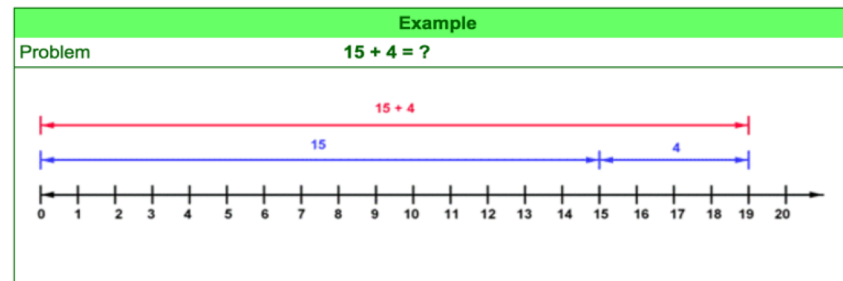
- Add whole numbers without regrouping.
- Add whole numbers with regrouping.
- Find the perimeter of a polygon.
- Solve application problems using addition.

Introduction

Adding is used to find the total number of two or more quantities. The total is called the **sum**, or the number that results from the addition. You use addition to find the total distance that you travel if the first distance is 1,240 miles and the second distance is 530 miles. The two numbers to be added, 1,240 and 530, are called the **addends**. The total distance, 1,770 miles, is the sum.

Adding Whole Numbers, without Regrouping

Adding numbers with more than one digit requires an understanding of **place value**. The place value of a digit is the value based on its position within the number. In the number 492, the 4 is in the hundreds place, the 9 is in the tens place, and the 2 is in the ones place. You can use a number line to add. In the example below, the blue lines represent the two quantities, 15 and 4, that are being added together. The red line represents the resulting quantity.





Study Path ACT CollegeReady™ Math



Master this unit to improve your score:



Whole Numbers

Recommended study time: 3 hours

NEEDS REVIEW

UNIT TEST

Topics you need to study in this unit:



Adding Whole Numbers and Applications



NEEDS REVIEW

Expand your knowledge

OR

Check your knowledge

LEARN

TEST



Subtracting Whole Numbers and Applications



NEEDS REVIEW

Expand your knowledge

OR

Check your knowledge

LEARN

TEST



Estimation



NOT READY

Expand your knowledge

OR

Check your knowledge

LEARN

TEST



Multiplying Whole Numbers and Applications



?

Expand your knowledge

OR

Check your knowledge

LEARN

TEST



Dividing Whole Numbers and Applications

Expand your knowledge

Check your knowledge

You have mastered 3 of 12 topics in this unit

- ✓ Place Value and Names for Whole Numbers
- ✓ Rounding Whole Numbers
- ✓ Comparing Whole Numbers

Additional units you could study

Measurement

NOT READY

Concepts in Statistics

NOT READY

Trigonometry

NOT READY

ACT[®] CollegeReady[™]

Abigail Avery

Study Path

Master this unit to

1+1=2

2+2=3

Adding Whole Numbers and Applications

Expand your knowledge

OR

Check your knowledge

LEARN

TEST

1+1=2

2+2=3

Subtracting Whole Numbers and Applications

Expand your knowledge

OR

Check your knowledge

LEARN

TEST

1+1=2

2+2=3

Estimation

Expand your knowledge

OR

Check your knowledge

LEARN

TEST

1+1=2

2+2=3

Multiplying Whole Numbers and Applications

Expand your knowledge

OR

Check your knowledge

LEARN

TEST

1+1=2

2+2=3

Dividing Whole Numbers and Applications

Expand your knowledge

OR

Check your knowledge

LEARN

TEST

Additional units you could study

Measurement

NOT READY

Concepts in Statistics

NOT READY

Trigonometry

NOT READY

Adding Whole Numbers and Applications

Complete a short test to check your knowledge for this topic.

If you are not ready to check your knowledge, exit this test and click the LEARN button for this topic instead.

CLOSE

START NOW



Study Path > ACT CollegeReady™ Math > Topic Test

Topic: Adding Whole Numbers and Applications

Good Job!

Based on your answers here you have mastered this topic!

OK



Study Path ACT CollegeReady™ Math



Master this unit to improve your score:



Real Numbers

Recommended study time: 3 hours

NEEDS REVIEW

UNIT TEST

Topics you need to study in this unit:



Adding Integers

NEEDS REVIEW

Expand your knowledge

OR

Check your knowledge

LEARN

TEST



Adding Real Numbers

NEEDS REVIEW

Expand your knowledge

OR

Check your knowledge

LEARN

TEST



Subtracting Real Numbers

NOT READY

Expand your knowledge

OR

Check your knowledge

LEARN

TEST



Multiplying and Dividing Real Numbers

?

Expand your knowledge

OR

Check your knowledge

LEARN

TEST



Associative, Commutative, and Distributive

Expand your knowledge

Check your knowledge

You have mastered 3 of 9 topics in this unit

- ✓ Place Value and Names for Whole Numbers
- ✓ Rounding Whole Numbers
- ✓ Comparing Whole Numbers

Units you have mastered

- Whole Numbers **MASTERED**
- Fractions and Mixed Numbers **MASTERED**
- Decimals **MASTERED**

Additional units you could study

- Measurement **NOT READY**
- Concepts in Statistics **NOT READY**
- Trigonometry **NOT READY**



Study Path

ACT CollegeReady™ Math



Congratulations!

You have completed this study path and reached your target score of 90.

You can:

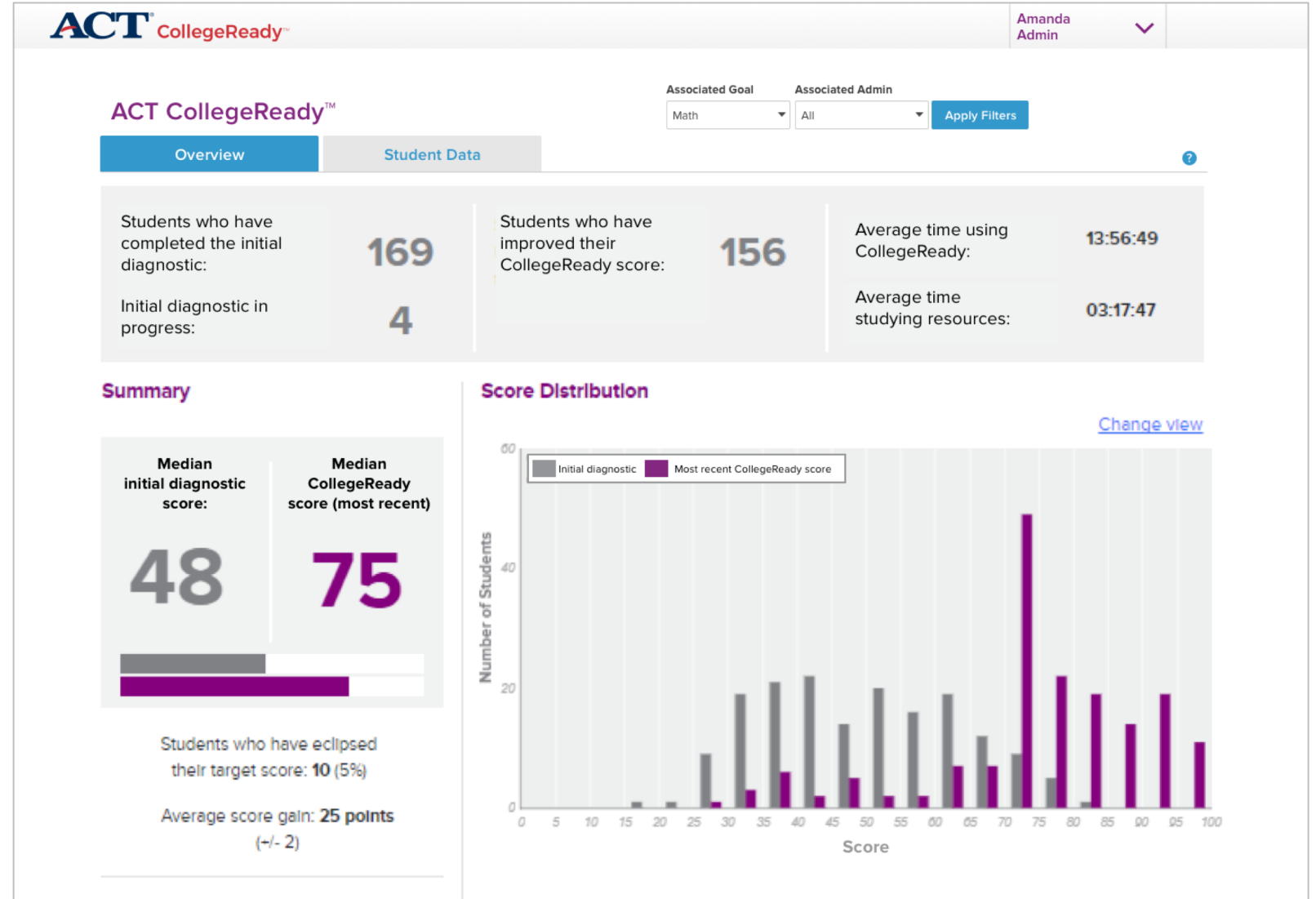
[Review](#) the units you have already mastered.

[Continue studying](#) new material to raise your score.

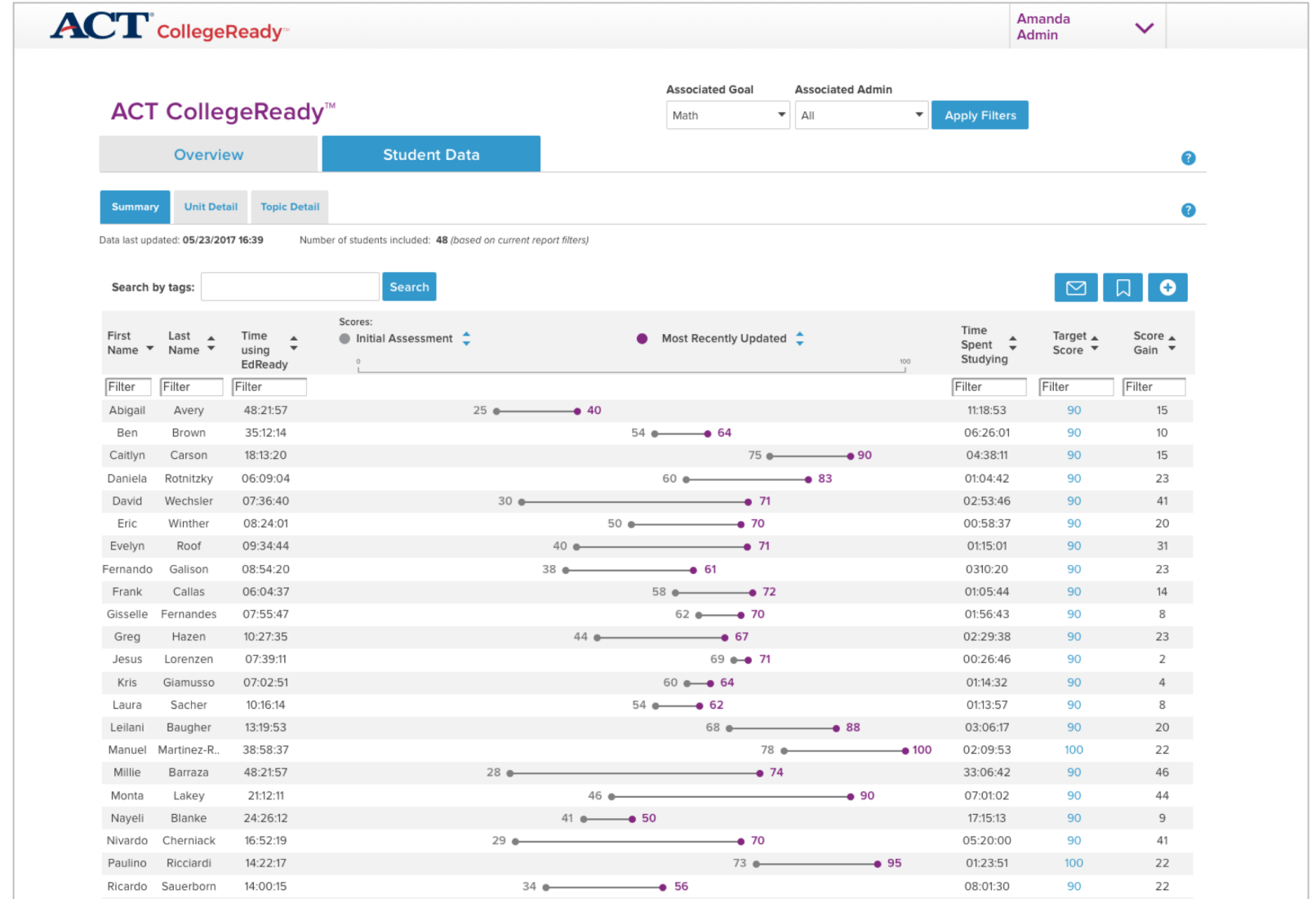
Administrator Experience

Admin experience

Administrator Overview screen



Admin experience



Admin
experience

ACT CollegeReady™

Amanda Admin

ACT CollegeReady™

Associated Goal: Math

Associated Admin: All

Apply Filters

Overview

Student Data

Summary

Unit Detail

Topic Detail

Data last updated: 05/23/2017 16:39

Number of students included: 48 (based on current report filters)

Not Assessed

Needs Review

Not Ready

Mastered

Search by tags:

Search

Enable Accessible View

First Name	Last Name	Most Recent Score	Unit	Score Gain	Login Count
Filter	Filter	Filter	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	Filter	Filter
Abigail	Avery	40		15	29
Ben	Brown	64		10	18
Caitlyn	Carson	90		15	4
Daniela	Rotnitzky	83		23	16
David	Wechsler	71		41	16
Eric	Winther	70		20	18
Evelyn	Roof	71		31	15
Fernando	Gallison	61		23	21
Frank	Callas	72		14	15
Gisselle	Fernandes	70		8	8
Greg	Hazen	67		23	15
Jesus	Lorenzen	71		2	14
Kris	Giamusso	64		4	11
Laura	Sacher	62		8	14
Leilani	Baugher	88		20	12
Manuel	Martinez-R..	100		22	57
Millie	Barraza	74		46	48
Monta	Lakey	90		44	33
Nayeli	Blanke	50		9	32
Nivardo	Cherniack	70		41	29

Admin
experience

ACT CollegeReady™

Amanda Admin

ACT CollegeReady™

Associated Goal: Math

Associated Admin: All

Apply Filters

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Mastered

Unit

Unit 9: Real Numbers

Search by tags:

Search

Enable Accessible View

First Name	Last Name	Most Recent Score	Topic	Score Gain	Login Count
Filter	Filter	Filter	1 2 3 4 5 6 7 8 9	Filter	Filter
Abigail	Avery	40		15	29
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Evelyn	Roof	71		31	15
Fernando	Gallison	61		23	21
Frank	Callas	72		14	15
Gisselle	Fernandes	70		8	8
Greg	Hazen	67		23	15
Jesus	Lorenzen	71		2	14
Kris	Giamusso	64		4	11
Laura	Sacher	62		8	14
Leilani	Baughner	88		20	12
Manuel	Martinez-R..	100		22	57
Millie	Barraza	74		46	48
Monta	Lakey	90		44	33
Nayeli	Blanke	50		9	32
Nivardo	Cherniack	70		41	29

Questions?

