MATH THAT!: Using Online Curricula with High School & Postsecondary DHH Students

Sarah E. Sarchet
Jessica Williams & Thomastine Sarchet-Maher

RIT | National Technical Institute for the Deaf
Summer Transition Education Program

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Agenda

- Introductions
- Background on Designing Summer Transition Education Program (STP)
- Summary of NTID's STP
- Math Instruction
- Outcomes
- Other Things We Learned
- Into the Present and Future
- Questions & Answers

T/J/S

Introductions

RIT | National Technical Institute for the Deaf
Summer Transition
Education Program

Sarah E. Sarchet

- Senior Lecturer at NTID (10+ years)
- Cellular & Molecular Biologist
- BS in Biology
- MS in Deaf Education
- Research interests: Culturally responsive pedagogy; micro-messaging in the classroom; NLD pedagogy

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Jessica Williams

- Associate Professor- Teacher Preparation Program at NTID
- Co-director for Center for Education Research Partnerships
- BS in Communication Sciences and Disorders, MS Educating Children who are DHH, Ph. D. Educating Exceptional Children- DHH concentrations
- Research: Summer Bridge Programs for DHH students, decoding strategies for DHH students, and vocabulary learning strategies for DHH students

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Thomastine A. Sarchet-Maher

- Assistant Dean
- BS in Biology, MS in Deaf Education, EdD Teaching and Curriculum
- Research: academic achievement in DHH college students; international deaf education development

Tell us: Who are you?

- Raise your hand if you are a:
  - Teacher of the Deaf
  - Interpreter
  - Speech-Language Specialist
  - School Administrator
  - VR Counselor
  - Other?

Background

From the Literature

- Deaf and hard of hearing (DHH) students are enrolling in college in higher numbers than in the past
  - graduation rates continue to lag behind their hearing peers (Garberoglio, Palmer, & Cawthon, 2019; Newman et al., 2011)

- More than half of DHH students enrolled in college are obtaining an associate's degree and are enrolling in remedial courses (Garberoglio, et al., 2019)

Rationale & Program Design

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Summer Bridge Programs - Background

- **More cost effective for the student**
- **Do no push out their graduation dates**
- **Students who attend are**
  - More likely to be in college at the end of their 2nd year
  - Likely to improve their math, writing, self-efficacy, and other academic skills

- **To date, Summer Bridge Programs have not been tested with the DHH population.**

T/J

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Summer Transition Education Program (STP) Goals

- Improve college-readiness for underprepared deaf students
- Provide students with information about their strengths and areas of improvement on specific skills
- Improve retention of students who are underprepared for direct admissions to an NTID academic program
- Gather data on the incoming populations of students to inform placement decisions, academic planning, and curricula

T/J

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Overall Program Design (2019)

- **Instructional Time**:
  - 6 hours/day of formal instruction, both in small groups and 1:1 as needed
  - educational and social wrap-around activities on evenings and weekend

- **Planned Instruction (group and individual):**
  - American Sign Language
  - English - Reading and Writing Skills
  - **Math**
  - College Readiness, Academic Maturity, and Study Skills workshops

- Entrance/exit academic counseling and advising
- Chromebooks and Summer Vestibule Program offset for successful completion

T/J

Math Instruction:
MyLab Foundational Skills

MyLab from Pearson Education

- An online assessment and learning system
- Provides online, print, and email delivery of assessments.
- Allows for tracking and evaluating student progress during and after the learning process.

- For instructors, MyLab provides basic course management capabilities:
  - Organization
  - Grades
  - Communication
  - Personalization of content

MyLab from Pearson Education

Students have access to:

- Personalized learning experiences
- Online homework
- Online assessments
- Online course resources
- Personalized study plans
- Adaptive assessments
- Tutorials
- Contextual feedback

Pearson

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My Courses

Active Inactive

Select a course name to open it.

Search all my courses

rochesterinstituteoftechnology26447

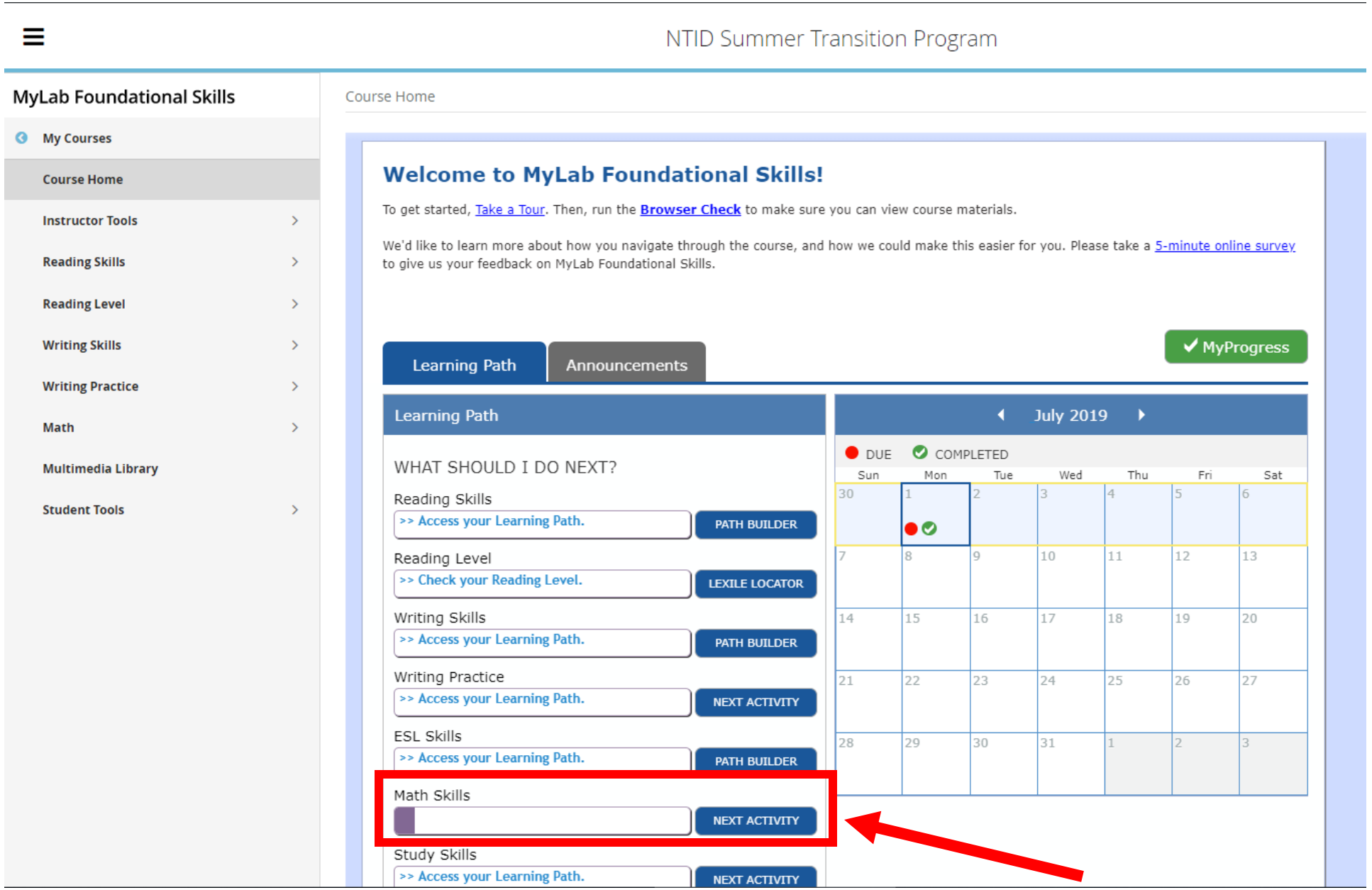
NTID Summer Transition Program

MyLab Foundational Skills

MFL Rochester Institute of Technology

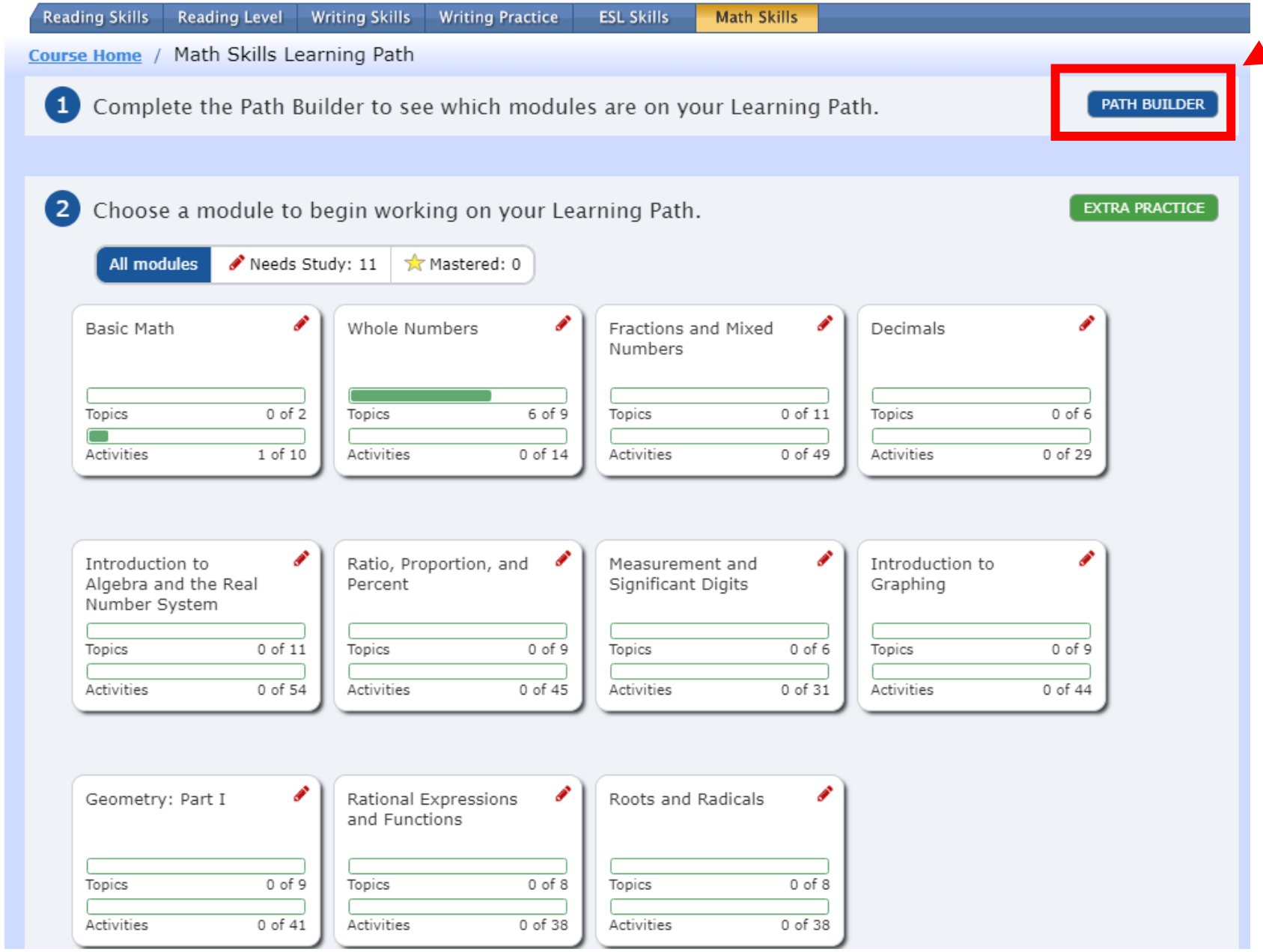
Apr 3 – Aug 24, 2019

▸ Details


NTID Summer Transition Program
MyLab Foundational Skills
My Courses
Course Home
Instructor Tools
Reading Skills
Reading Level
Writing Skills
Writing Practice
Math
Multimedia Library
Student Tools
Course Home
Welcome to MyLab Foundational Skills!
To get started, Take a Tour. Then, run the Browser Check to make sure you can view course materials.
We'd like to learn more about how you navigate through the course, and how we could make this easier for you. Please take a 5-minute online survey to give us your feedback on MyLab Foundational Skills.
MyProgress
Learning Path
Announcements
Learning Path
WHAT SHOULD I DO NEXT?
Reading Skills
>> Access your Learning Path.
PATH BUILDER
Reading Level
>> Check your Reading Level.
LEXILE LOCATOR
Writing Skills
>> Access your Learning Path.
PATH BUILDER
Writing Practice
>> Access your Learning Path.
NEXT ACTIVITY
ESL Skills
>> Access your Learning Path.
PATH BUILDER
Math Skills
NEXT ACTIVITY
Study Skills
>> Access your Learning Path.
NEXT ACTIVITY
July 2019
DUE
COMPLETED
Sun Mon Tue Wed Thu Fri Sat
30 1 2 3 4 5 6
7 8 9 10 11 12 13
14 15 16 17 18 19 20
21 22 23 24 25 26 27
28 29 30 31 1 2 3


MyLab Foundational Skills
Main Menu
Math
Learning Path
Completed Work
Learning Path

Course Home



Path Builder

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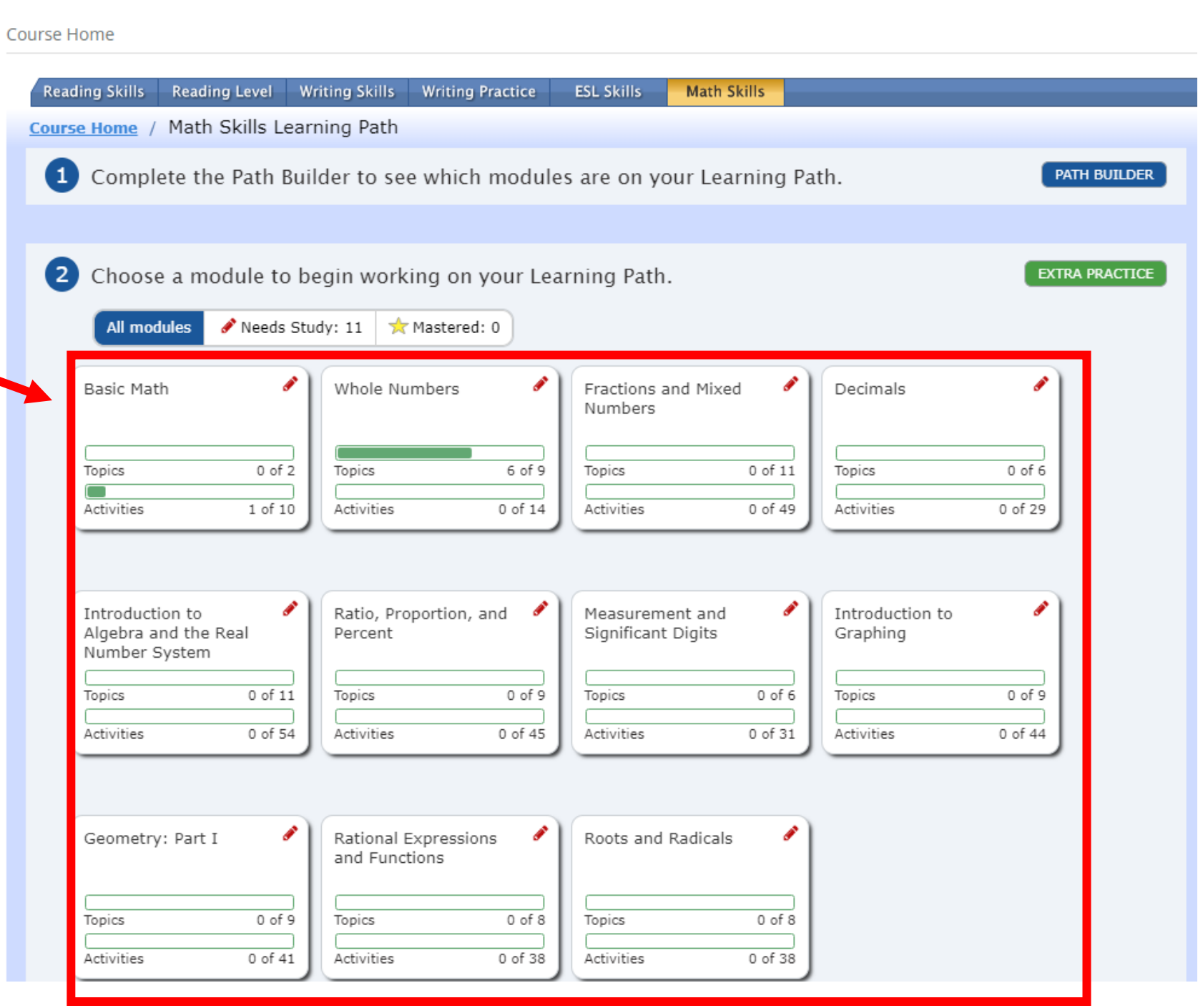
Path Builder

- A diagnostic tool to identify strengths, weaknesses, and gaps.
- The results create a customized set of learning modules based on where practice is needed.

Learning modules



2 Choose a module to begin working on your Learning Path.

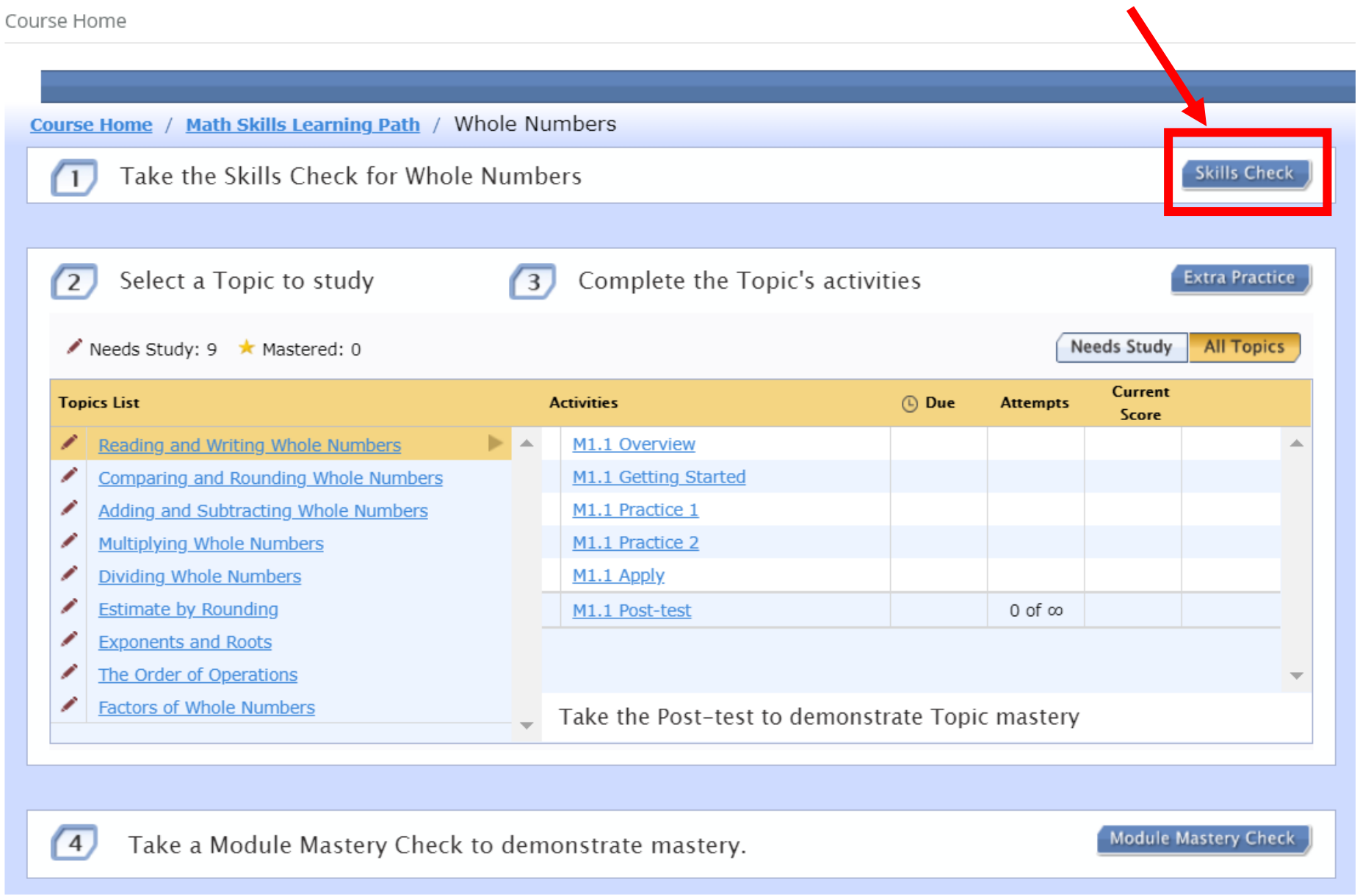
EXTRA PRACTICE

All modules | Needs Study: 12 | Mastered: 0

Whole Numbers module

Basic Math	Whole Numbers	Fractions and Mixed Numbers	Decimals
Topics 0 of 7	Topics 0 of 9	Topics 0 of 11	Topics 0 of 6
Activities 2 of 32	Activities 0 of 41	Activities 0 of 49	Activities 0 of 29
Introduction to Algebra and the Real Number System	Ratio, Proportion, and Percent	Measurement and Significant Digits	Introduction to Graphing
Topics 0 of 11	Topics 0 of 9	Topics 0 of 6	Topics 0 of 9
Activities 0 of 54	Activities 0 of 45	Activities 0 of 31	Activities 0 of 44
Geometry: Part I	Rational Expressions and Functions	Roots and Radicals	Sequences and Series
Topics 0 of 9	Topics 0 of 8	Topics 0 of 8	Topics 0 of 6
Activities 0 of 41	Activities 0 of 38	Activities 0 of 38	Activities 0 of 27

Skill Check


Course Home
Course Home / Math Skills Learning Path / Whole Numbers
1 Take the Skills Check for Whole Numbers
Skills Check
2 Select a Topic to study
3 Complete the Topic's activities
Extra Practice
Needs Study: 9
Mastered: 0
Needs Study
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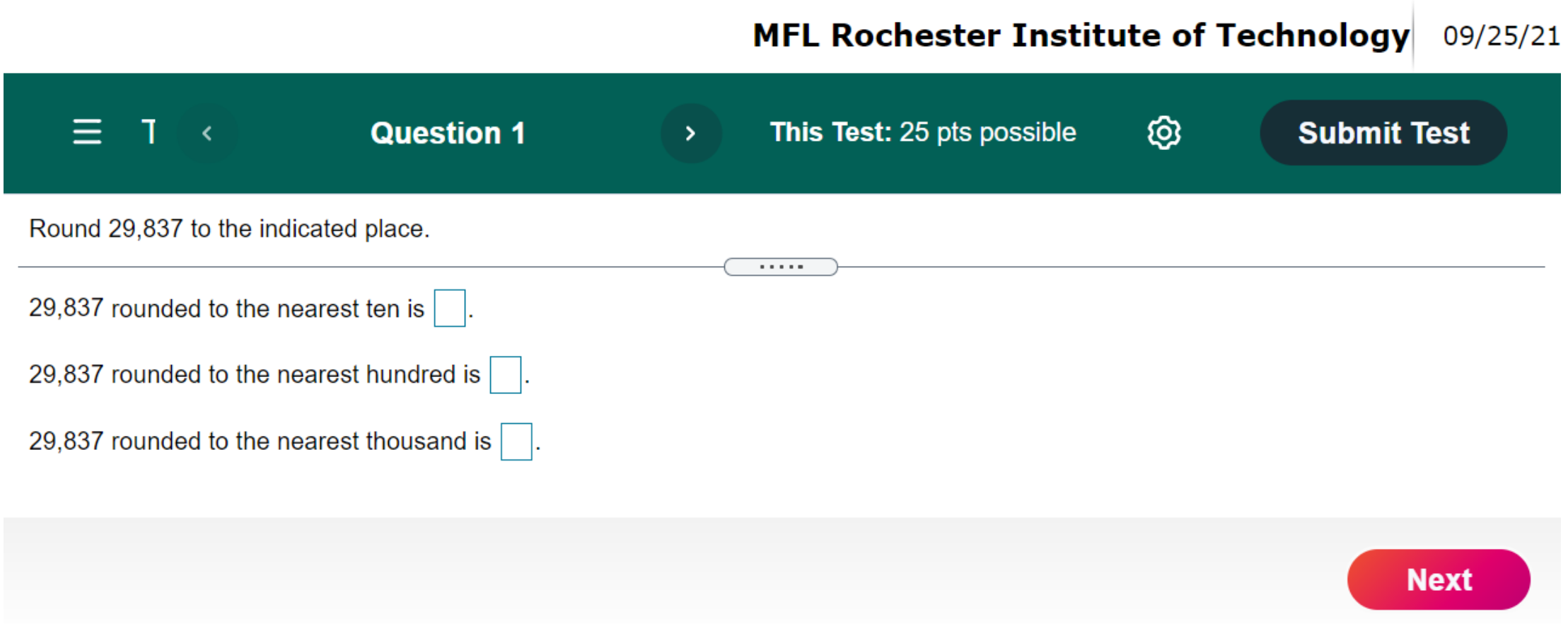
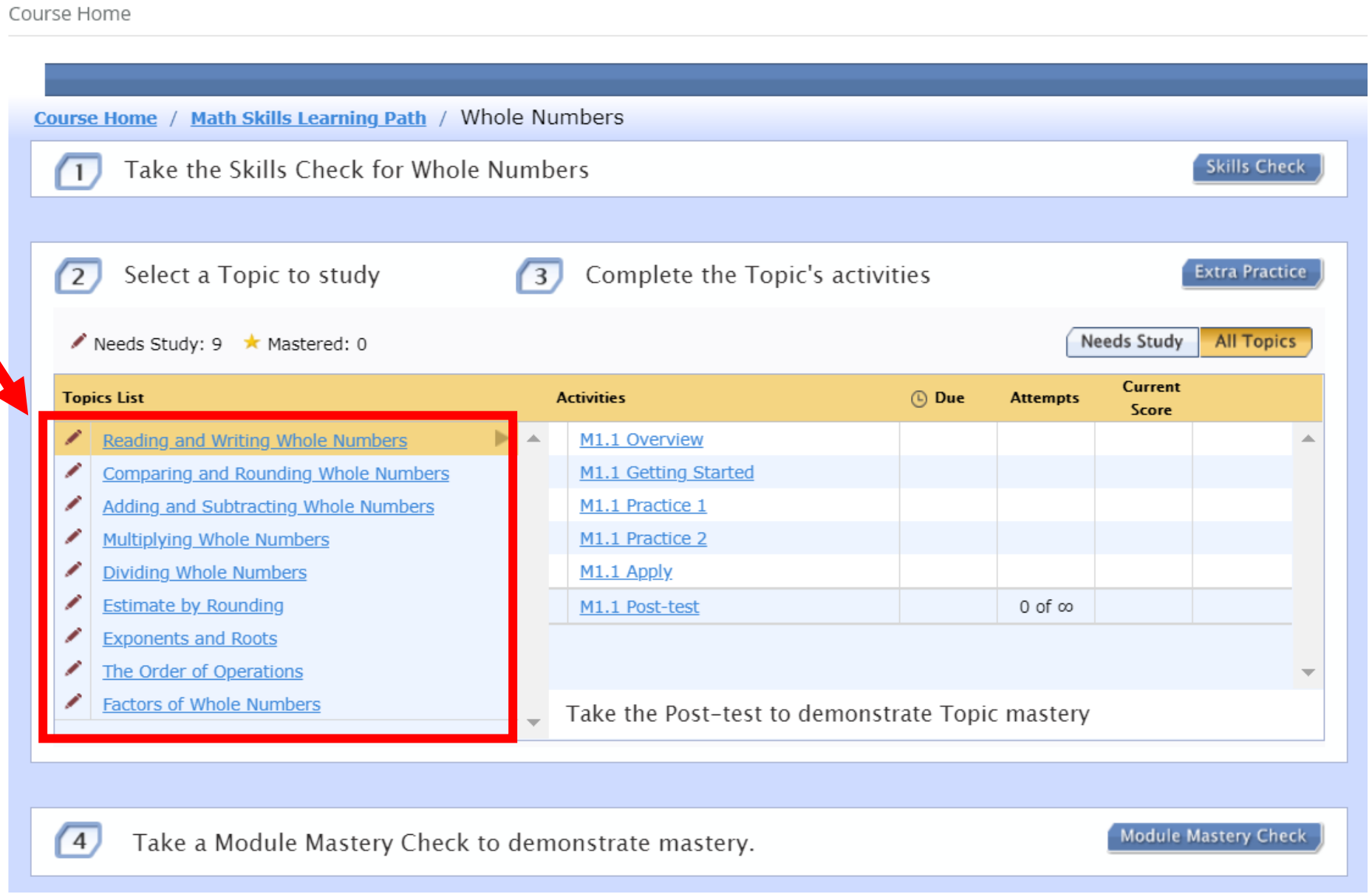
The Order of Operations
Factors of Whole Numbers
M1.1 Overview
M1.1 Getting Started
M1.1 Practice 1
M1.1 Practice 2
M1.1 Apply
M1.1 Post-test
0 of ∞
Take the Post-test to demonstrate Topic mastery
4 Take a Module Mastery Check to demonstrate mastery.
Module Mastery Check

- 20-30 questions on Skills Check
- “Test out” of any specific skills within this module

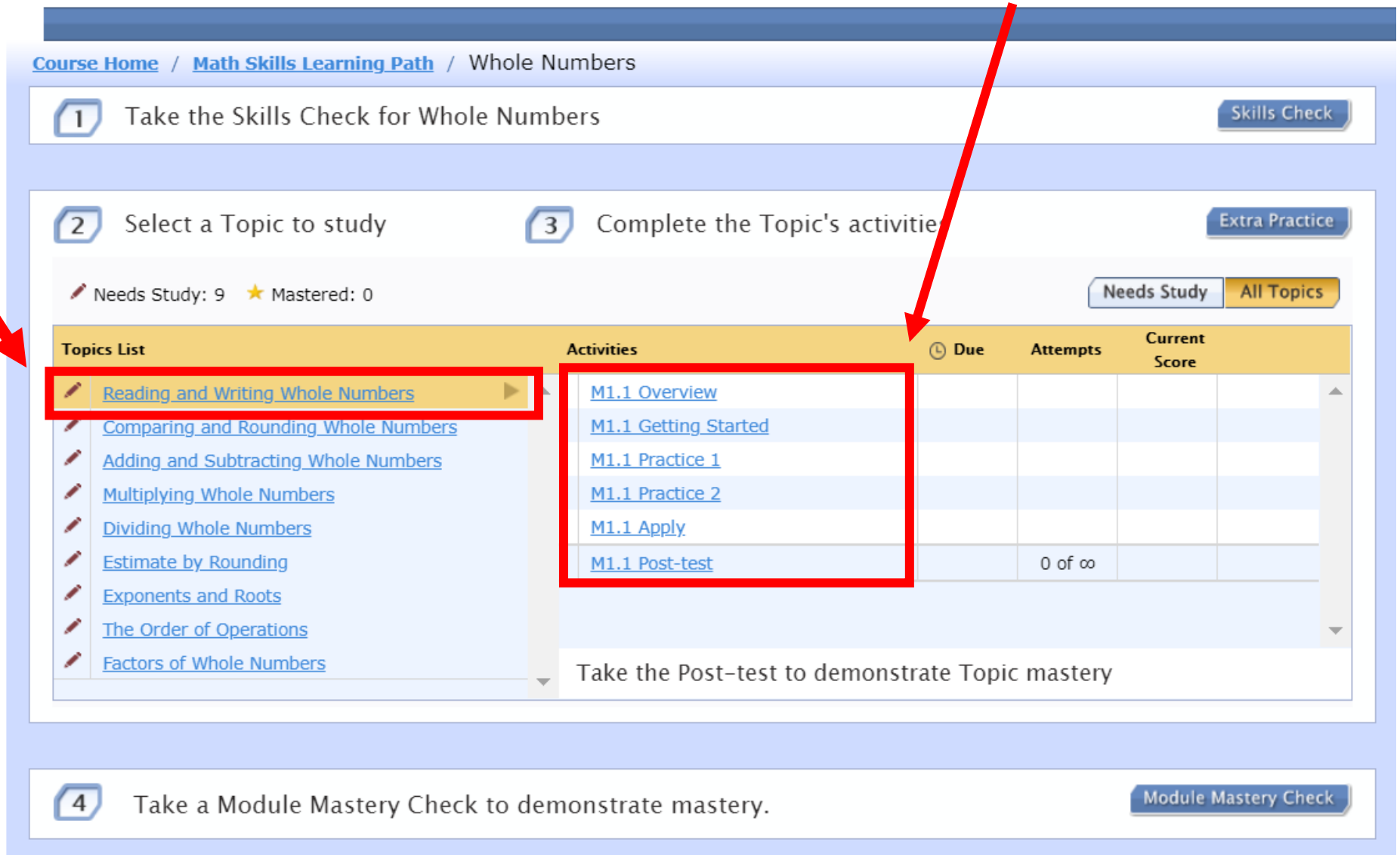


Topics in this module

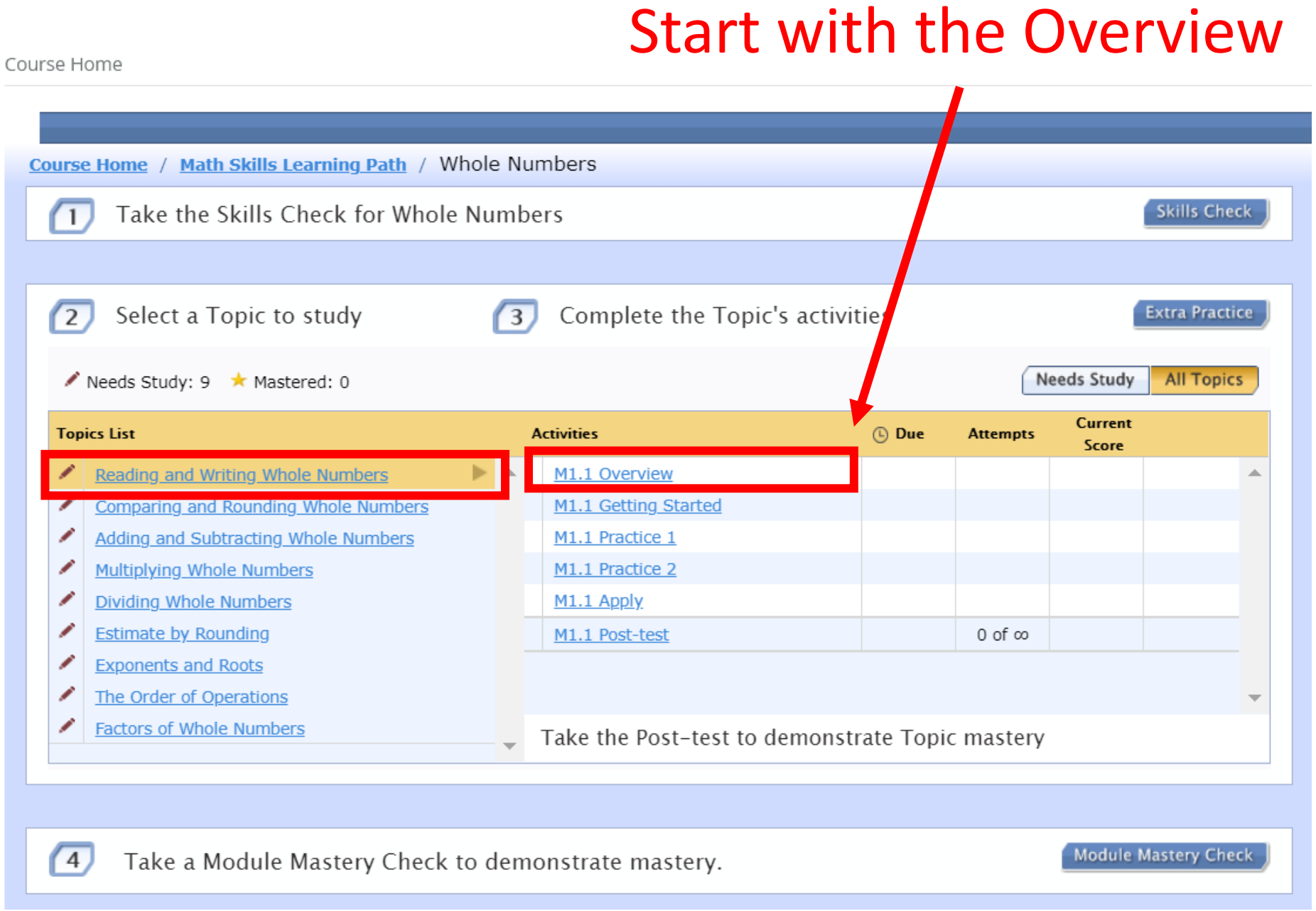


Select a topic.

View Activities



Start with the Overview



Let's zoom in...

Do Homework

Name: M1.1 Overview

Current Score: 0% (0 points out of 6)

You must view all media files listed below to receive credit.

Media: 6	Scored Media: 0	Questions: 0	Correct: 0	Partial Credit: 0	Incorrect: 0

Overview: Reading and Writing Whole Numbers (0/1)

Video: Identifying Place Value 1 (0/1)

Video: Identifying Place Value 2 (0/1)

Video: Writing Numbers in Words (0/1)

Video: Writing Numbers Using Digits (0/1)

Video: Word Problems Using Whole Numbers (0/1)

Do Homework

Name: M1.1 Overview

Current Score: 0% (0 points out of 6)

You must view all media files listed below to receive credit.

Media: 6	Scored Media: 0	Questions: 0

Overview: Reading and Writing Whole Numbers (0/1)

Video: Identifying Place Value 1 (0/1)

Video: Identifying Place Value 2 (0/1)

Video: Writing Numbers in Words (0/1)

Video: Writing Numbers Using Digits (0/1)

Video: Word Problems Using Whole Numbers (0/1)

Lesson Overview

Overview: Reading and Writing Whole Numbers

In this topic you will learn how to:

- Understand place value and expanded notation for whole numbers.
- Write whole numbers in words.
- Write whole numbers using digits.
- Understand the Roman numeration system.

When reading or writing numbers, it is important to identify the place value of each digit in the number. A **place value** indicates the position in which a specific digit is to be placed in a number.

Whole numbers can be written in two different ways: **standard form** and **expanded form**. When written using digits, a number is considered to be in standard form. When a number is written as an expression adding each of the place values, it is considered to be in expanded form. For example, the number fifty-three is written in standard form as 53 and in expanded form as
5 tens + 3 ones.

Do Homework

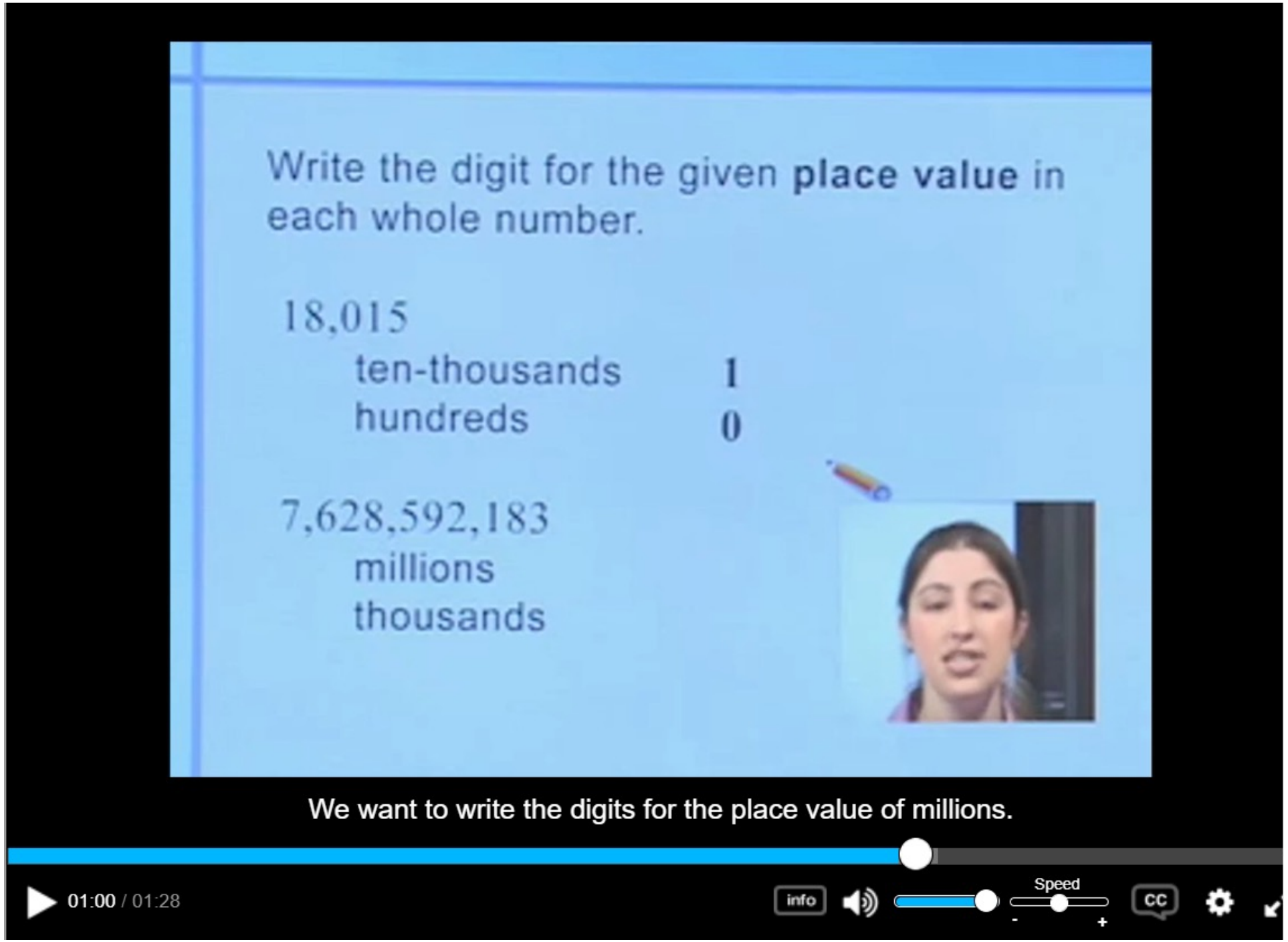
Name: M1.1 Overview

Current Score: 0% (0 points out of 6)

You must view all media files listed below to receive credit.

Media: 6	Scored Media: 0	Questions: 0

- ✔ Overview: Reading and Writing Whole Numbers (0/1)
- Video: Identifying Place Value 1 (0/1)
- Video: Identifying Place Value 2 (0/1)
- Video: Writing Numbers in Words (0/1)
- Video: Writing Numbers Using Digits (0/1)
- Video: Word Problems Using Whole Numbers (0/1)


Write the digit for the given **place value** in each whole number.
18,015
ten-thousands 1
hundreds 0
7,628,592,183
millions
thousands
We want to write the digits for the place value of millions.
01:00 / 01:28
info
Speed
CC

Do Homework

Name: M1.1 Overview

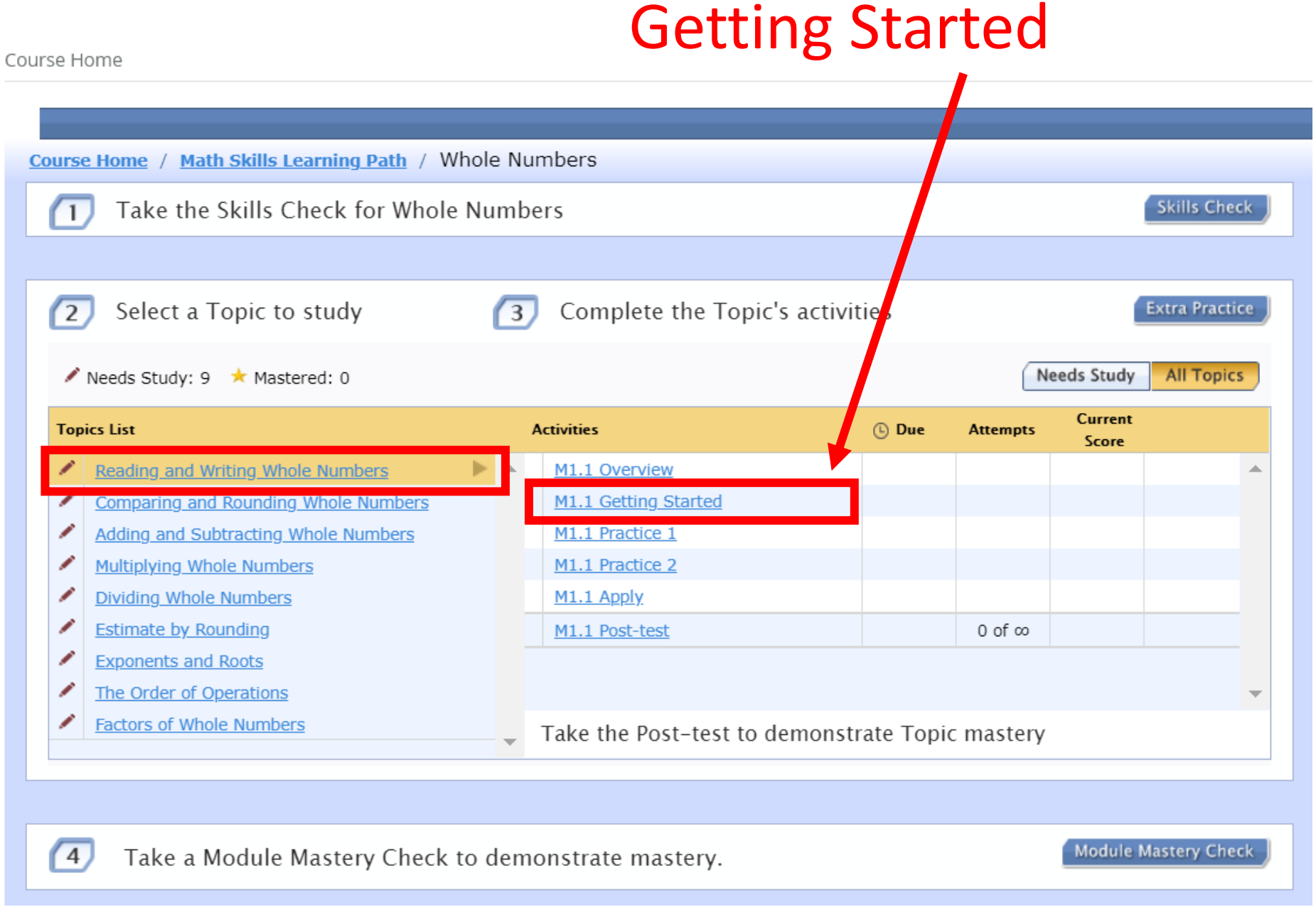
Current Score: 0% (0 points out of 6)

You must view all media files listed below to receive credit.

Media: 6	Scored Media: 0	Questions: 0

- ✔ Overview: Reading and Writing Whole Numbers (0/1)
- ✔ Video: Identifying Place Value 1 (0/1)
- Video: Identifying Place Value 2 (0/1)
- Video: Writing Numbers in Words (0/1)
- Video: Writing Numbers Using Digits (0/1)
- Video: Word Problems Using Whole Numbers (0/1)

Getting Started



5-8 simple practice questions

Do Homework

Name: M1.1 Getting Started

Current Score: 0% (0 points out of 5)

Attempts: Unlimited per question

Skill Builder is available to help just when you need it.

Questions: 5	Scored: 0	Correct: 0	Partial Credit: 0	Incorrect: 0

Question 1 (0/1)

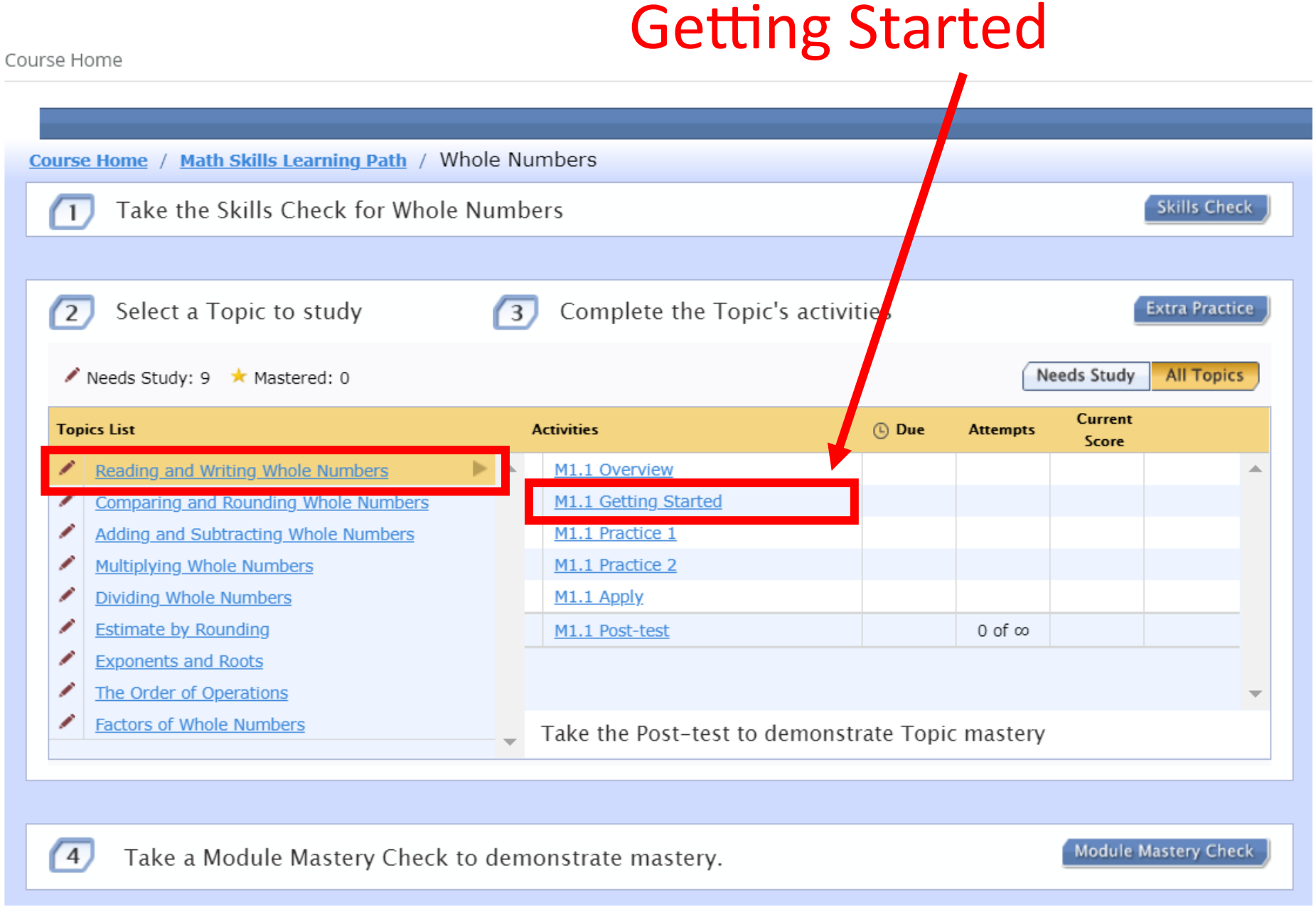
Question 2 (0/1)

Question 3 (0/1)

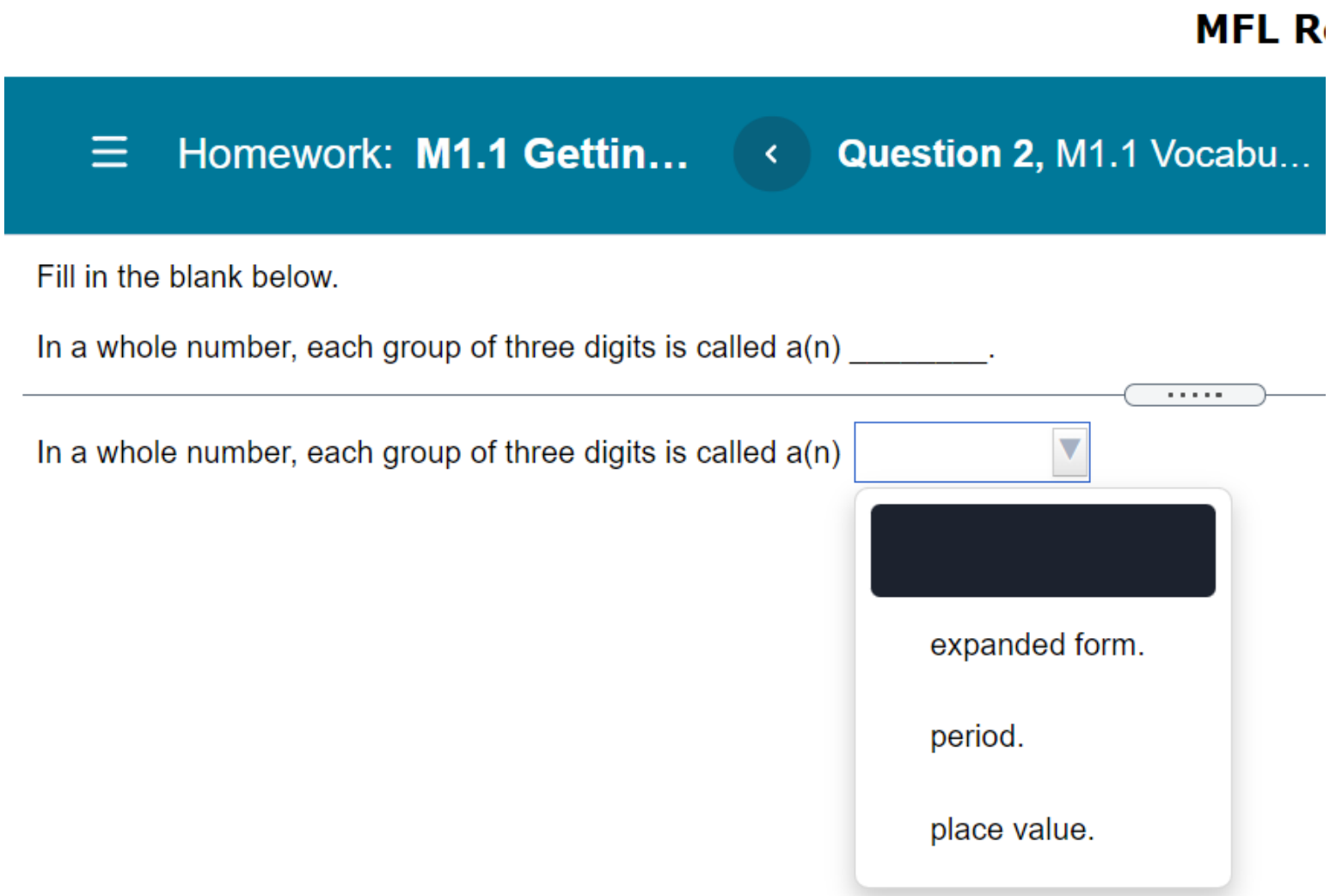
Question 4 (0/1)

Question 5 (0/1)

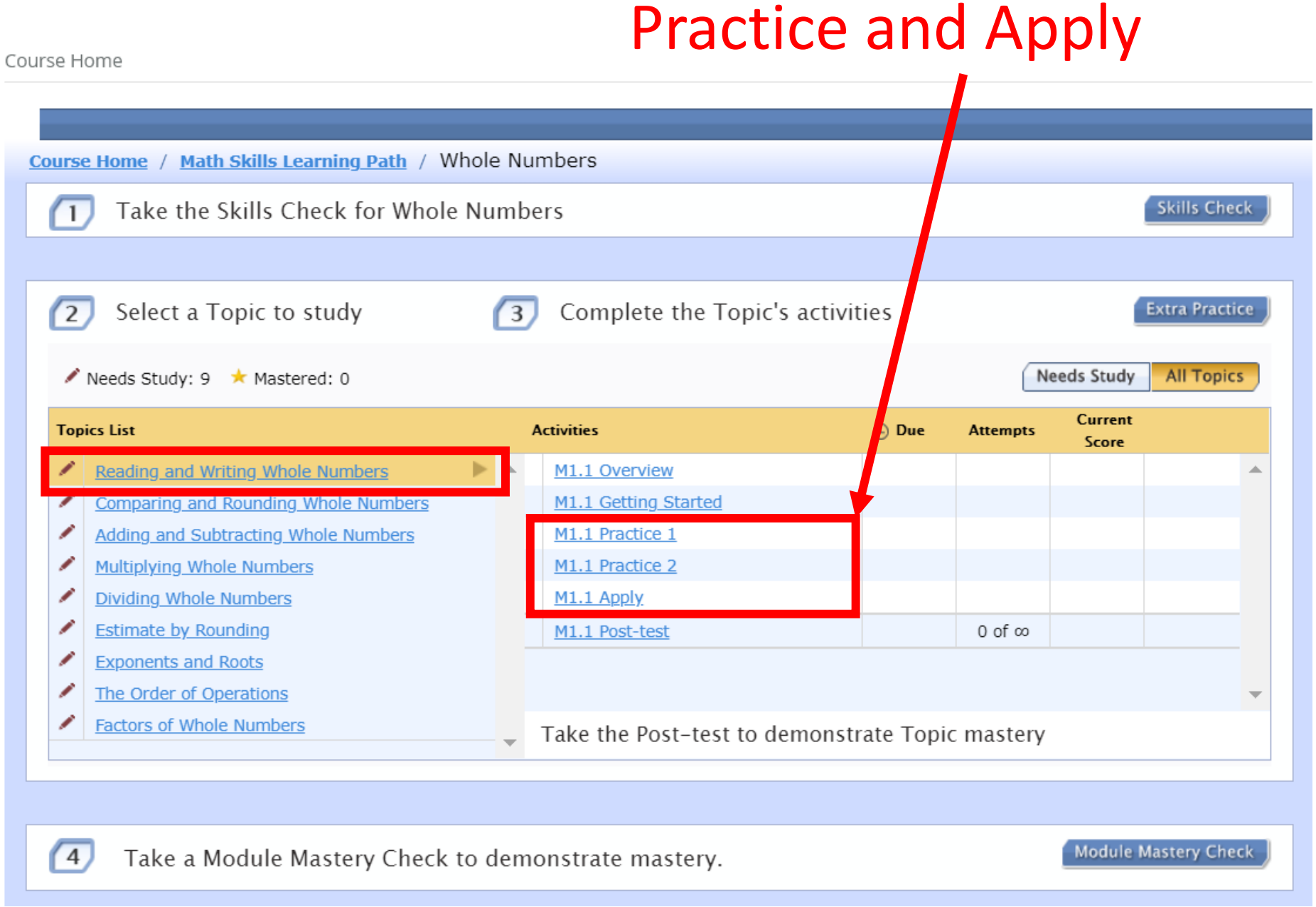
Getting Started



Sample Getting Started question



Practice and Apply



Sample Practice question

Homework: **M1.1 Practi…** ‹ **Question 6,** M1.1 Practic…

Choose the correct word name for the number below.

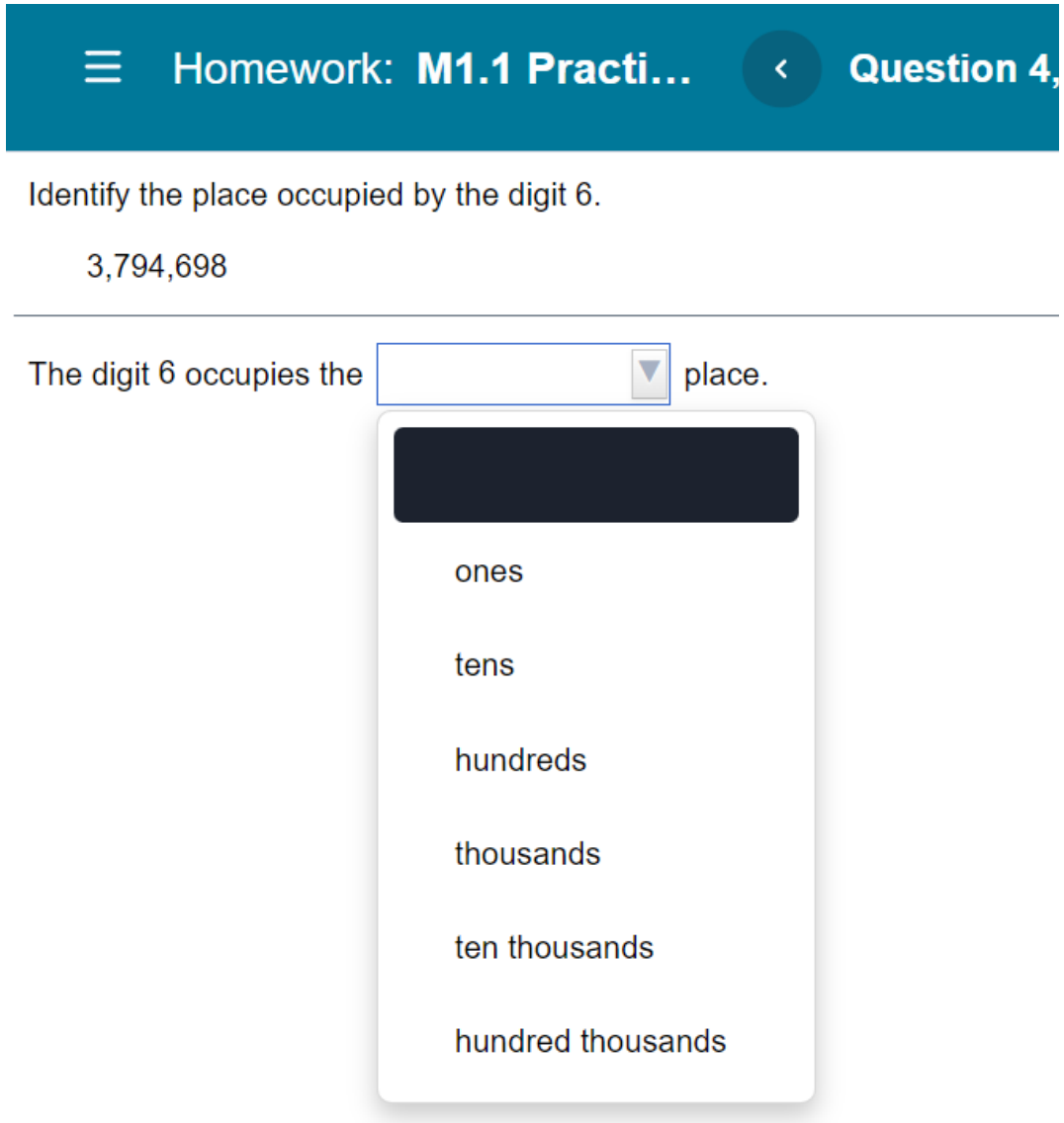
73,789

.....

Choose the correct word name below.

- A. seventy-three thousand and seven hundred and eighty-nine
- B. seventy-three thousand, seven hundred eighty-nine
- C. seventy three thousand, seven hundred eighty nine
- D. seventy-three thousand seven hundred eighty-nine

Sample Practice question



Sample Apply question

Homework: **M1.1 Apply**

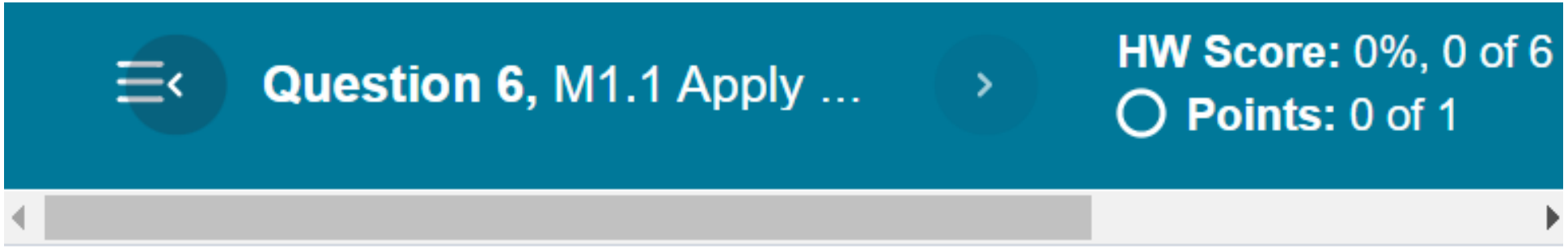
Give the place value of the digit 0 in the following number.

Suppose the population of a country is 270,889,813.

What is the place value of 0?

- A. hundreds
- B. hundred thousands
- C. millions
- D. ten millions

Sample Apply question



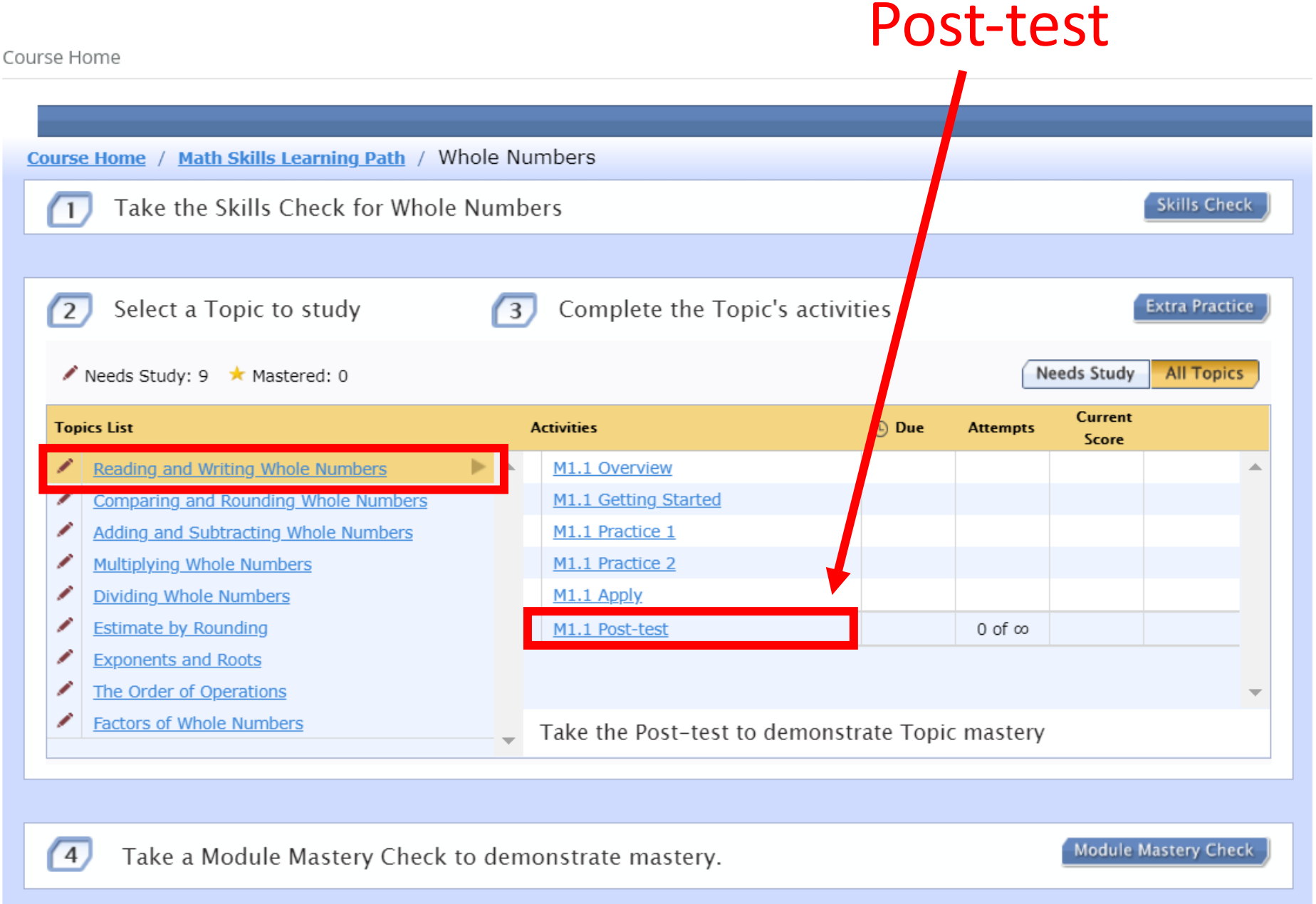
Townsmen of a certain country sit in traffic jams for a total of four billion, three hundred million hours each year.

Write the number in digits.

Using digits, four billion, three hundred million is ☐.

(Type a whole number.)

Post-test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M1.1 Practice 2
M1.1 Apply
M1.1 Post-test
0 of ∞
Take the Post-test to demonstrate Topic mastery
4 Take a Module Mastery Check to demonstrate mastery.
Module Mastery Check

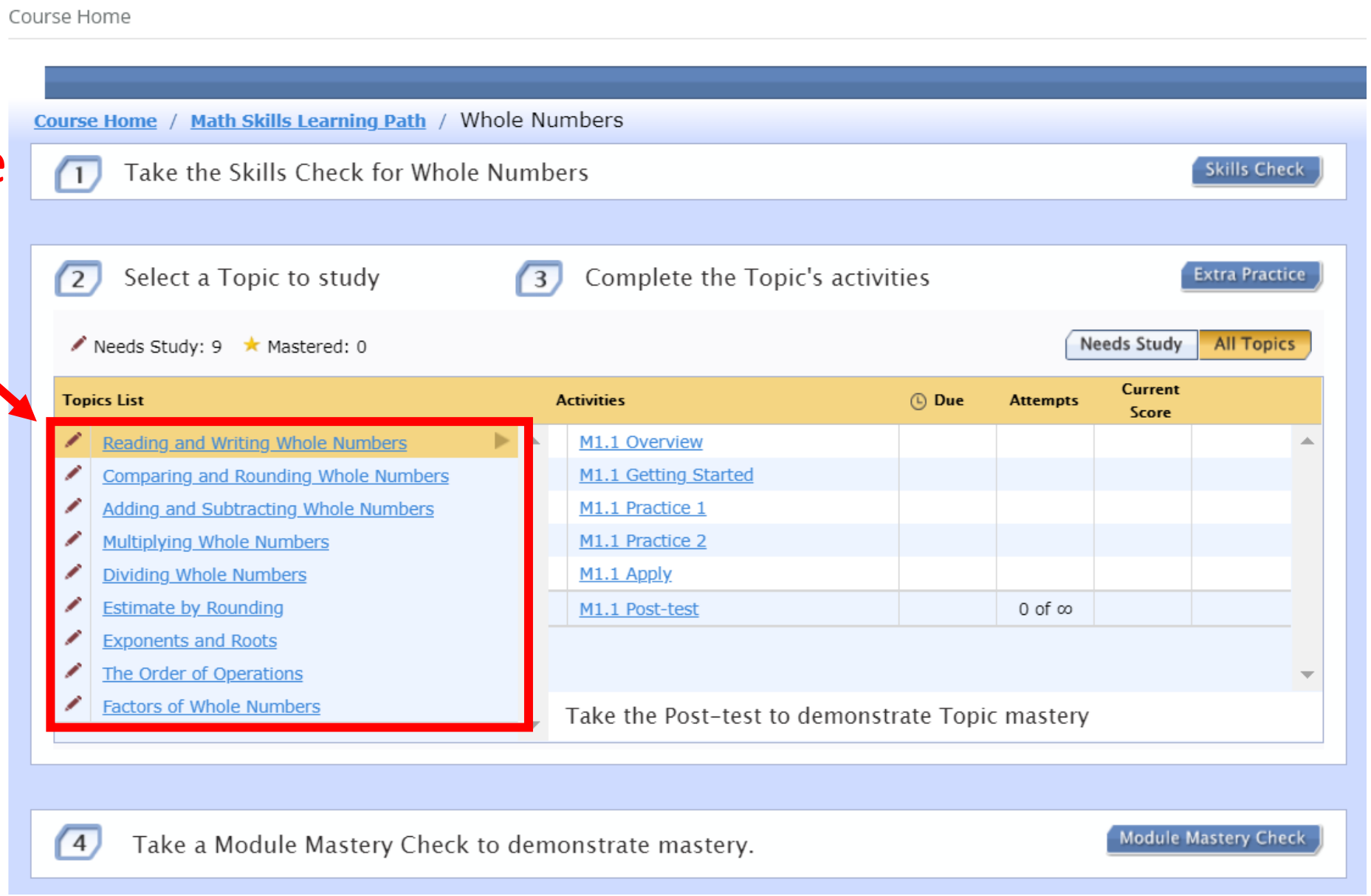
Post-test

Are you ready to start?

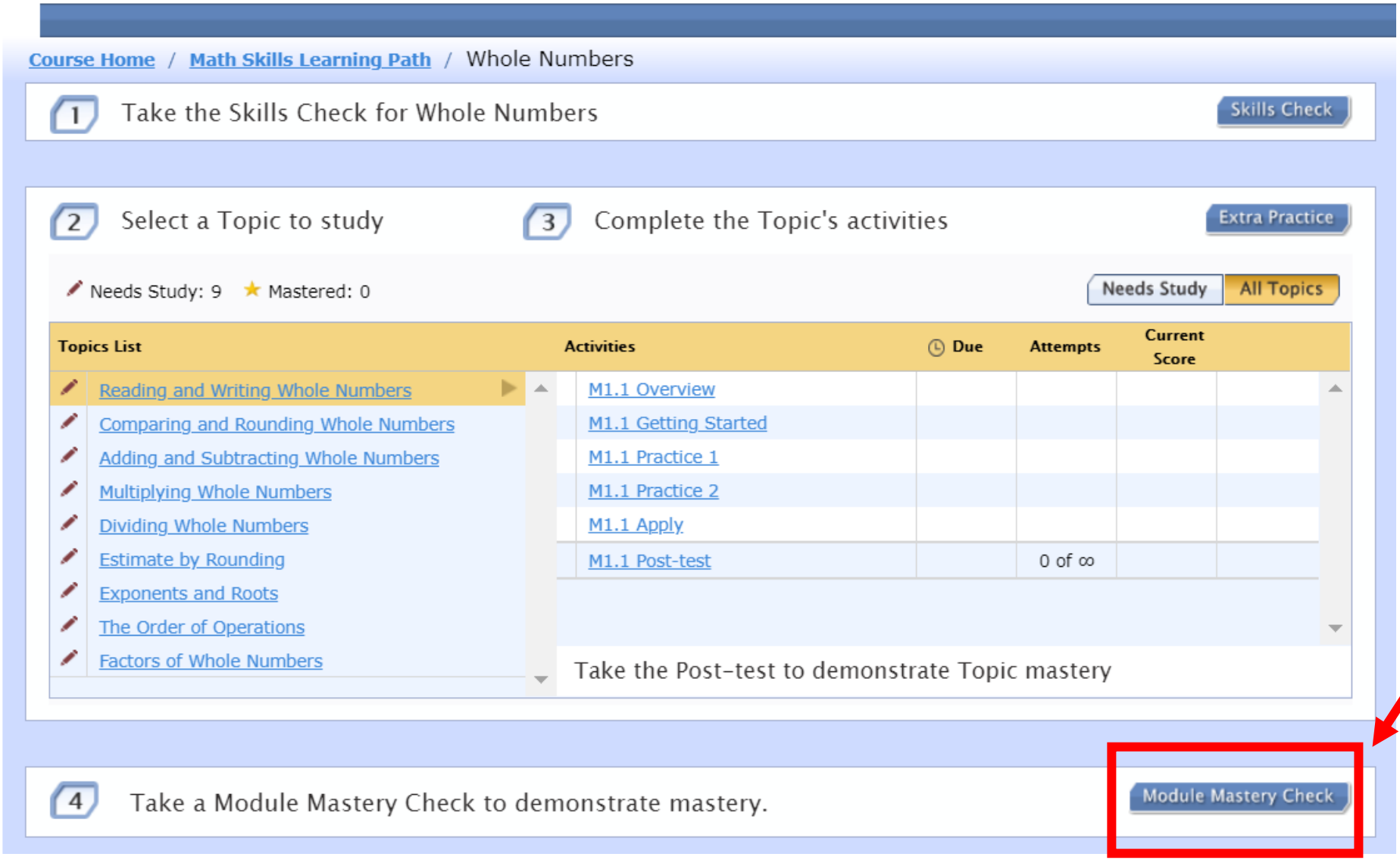
Test:	M1.1 Post-test
Questions:	12
Attempts:	1 of unlimited
Score Required for Mastery	80%

Finish the Test | Cancel

Complete all Topics



Course Home



Module Mastery Check

Pros of MyLab

- Easy to track student progress
- Access to “Extra Practice” question bank
- Individualized – software adapts to user
- Instant feedback
- Affordable - Approximately $35.00 for 10 week unit
  - 6 months = $70
  - 12 months = $115

Cons of MyLab

- Easy to “complete” tasks quickly
- More scaffolding needed
- Supporting content (lesson plans, worksheets, class activities) had to be created

Math Instruction: Delivering Content

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Sample 2 Hour Class Period (early in STP)

- **Lecturing** – Direct Instruction (20 min)
- **Modeling** – Instructor solves questions on board (10 min)
- **Guided Practice** – Students solve questions on board with instructor support (10 min)
- **Independent Practice** – Students solve questions on paper (15-20 min)
- **Break** (5-10min)
- **Practice for Mastery** – Students work Independently on MyLab modules (40 min)
- **Wrap-Up** – Announcements, assign homework (10 min)

Flexibility in Delivery (later in STP)

- **Grouping by Ability**
  - Instructor gave 3-5 students direct instruction
  - TA supported the other 5-7 students doing module work

- **Independent Pacing**
  - Some students had full class days of independent module work
  - Some students had full days of guided practice
  - Most students had a mixture

Let's see an example of a teaching powerpoint.

Math 1.1

Reading and Writing Whole Numbers

Overview:
Reading and Writing Whole Numbers

In this topic you will learn how to:

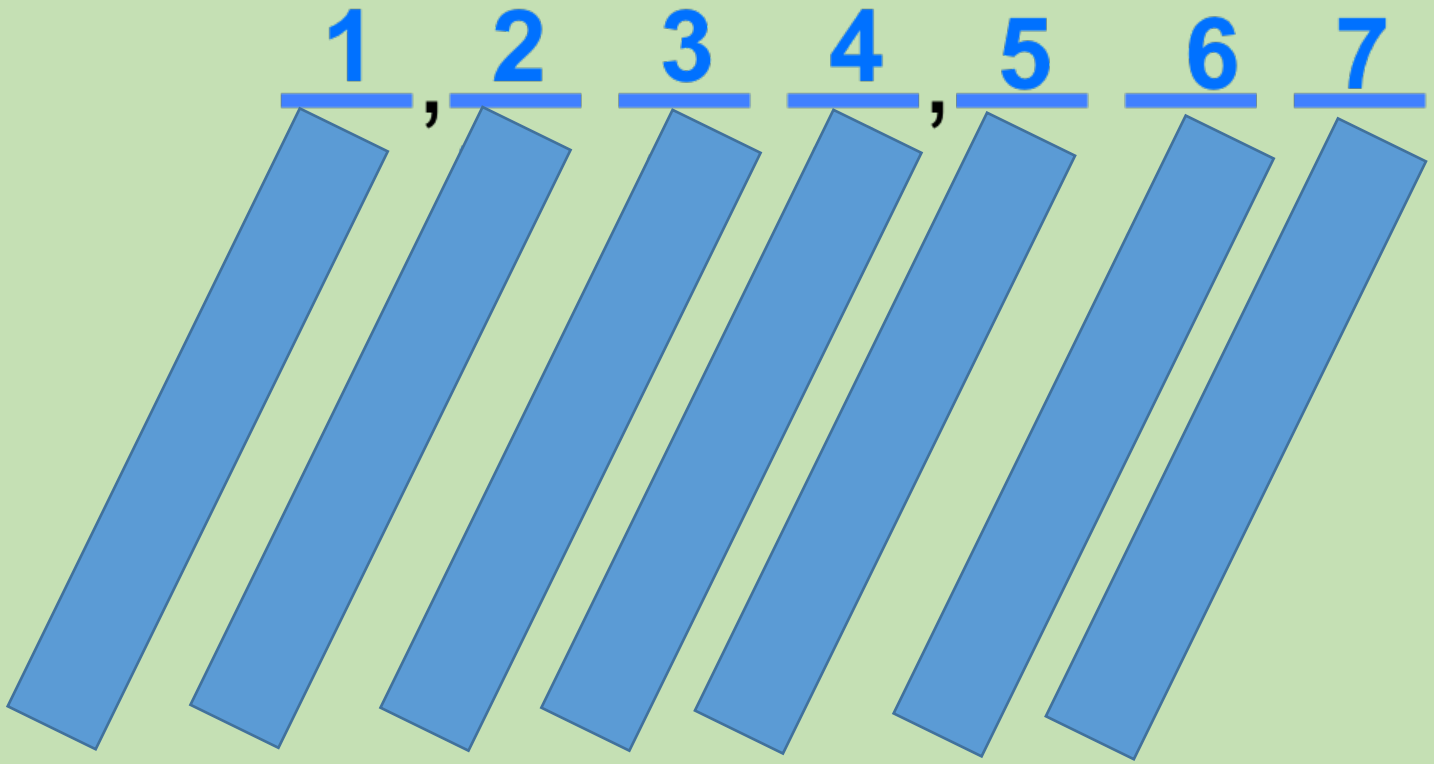
- Understand place value and expanded notation for whole numbers.
- Write whole numbers in words.
- Write whole numbers using digits.
- Understand the Roman numeration system.

Whole Numbers

- Vocabulary
  - **A. Place value →**
  - **B. Place holder →**
  - **C. Standard Form**
    -
    -
  - **D. Expanded Form**
    -
    -

Places

- Review



Modeling

Write the digit in the thousands place and the digit in the tens place for the given place value.

3782

thousands 3

tens 8

What digit is in the ten thousands place?

392,486 9

State the digit for the given place value in the number 7,833,805,265.

The tens place 6

Modeling

State the digit for the given place value in the number 3,837,502,215.

The thousands place

The digit in the thousands place is 2.

Numbers Written as Words

- Just as each period has a comma, it is the same when numbers are written out in words.
- Numbers in the ones place, thousands place, millions place may have a dash just before it.

- 15, 231
  - Fifteen thousand, two hundred thirty-one

Modeling

Rewrite the number 55,843,338 in words.

What is the number written in words?

- A. fifty-five million, eight hundred and forty-three thousand, three hundred and thirty-eight
- B. fifty-five, eight hundred forty-three, three hundred thirty-eight
- C. fifty-five million, eight hundred forty-three thousand, three hundred thirty-eight ones
- D. fifty-five million, eight hundred forty-three thousand, three hundred thirty-eight

Guided Practice

A. Sixteen 16

B. Four hundred three 403

C. Two thousand forty eight 2,048

D. Five million, eight hundred thousand 5,800,000

E. Seven hundred ninety-three million, six hundred forty-five thousand twenty-eight 793,645,028

More Practice

- Let's try "**M1.1 Getting Started**" together.

- After that, do these with a friend:
  - **M1.1 Practice 1**
  - **M1.1 Practice 2**
  - **M1.1 Apply**

- Last of all, do the **M1.1 Post Test** to see if you've mastered the skill.

(End of sample teaching PowerPoint)

Teaching Strategies

- Color coding
  - Green for teaching
  - White for practice/interaction
- Title slides to compartmentalize information
- Gradual transfer of responsibility
  - Instructor models
  - Students come to board for practice
  - Students work in pairs/small groups
  - Students work alone

Let's see a sample of extra practice.

M1.6 Extra Practice

Estimate the sum by first rounding the given numbers to the nearest thousand.

$$\begin{array}{r} 9103 \\ 6072 \\ 6455 \\ +\ 8466 \\ \hline \end{array}$$

Estimate the answer by rounding each number to the nearest ten. Then find the exact answer.

$27 + 73 + 59 + 48$

Write the rounded numbers and the estimated answer.

$$\begin{array}{rcr} 27 & \rightarrow & \square \\ 73 & \rightarrow & \square \\ 59 & \rightarrow & \square \\ 48 & \rightarrow & +\ \square \\ \hline & & \square \end{array}$$

Estimate the difference by first rounding the given numbers to the nearest thousand.

$$\begin{array}{r} 29{,}005 \\ -\ 14{,}172 \\ \hline \end{array}$$

Estimate the answer by rounding each number to the nearest ten. Then find the exact answer.

$$\begin{array}{r} 56 \\ -\ 33 \\ \hline \end{array}$$

Pat can type 64 words per minute. At that rate, how many words should he be able to type in 28 minutes?

Pat can type approximately ☐ words in 28 minutes.

A loan of $1380 will be paid off in 12 monthly payments. How much is each payment?

Use front end rounding to estimate the answer.

Each payment is approximately $☐.

The billing department at a toy company sent out 90 invoices on Monday, 63 invoices on Tuesday, 116 invoices on Wednesday, 60 invoices on Thursday, and 85 invoices on Friday. How many invoices were sent out in this 5-day period?

Estimate using front end rounding. How many invoices were sent out? ☐

Frances Buffalo decided to establish a budget. She will spend $670 for rent, $250 for food, $320 for child care, $225 for transportation, $150 for other expenses, and she will save the remainder. Her monthly take home pay is $1860. Use front end rounding to estimate Frances' monthly savings.

Frances saves approximately $☐ per month.

Let's see an example of student work.

Example of student work

2. The numerator of a fraction is written on the _____ of the fraction.

A. Top
B. Bottom

3. Give a true statement about the fraction $\frac{7}{11}$

A. The numerator of the fraction is 11.
B. The fraction is undefined.
C. The denominator of the fraction is 7.
D. The numerator of the fraction is 7

4. A fraction whose numerator is smaller than its denominator is called a(n)

A. Proper fraction
B. Like fraction
C. Improper fraction

5. Which of the following is a correct statement about a positive proper fraction?

A. A positive proper fraction has a numerator which is less than the denominator.
B. A positive proper fraction has a numerator which is greater than or equal to the denominator.
C. A positive proper fraction has a numerator which contains a variable.

Teaching Strategies

- Dynamic Feedback
  - Student attempts
  - Instructor indicates right/wrong, does NOT give answer
  - Student re-attempts
  - Further dialogue as needed

Monitoring Progress

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Math	Group 1	Group 1	Group 1	Group 1	Group 1	Group 1	Group 1	Group 1	Group 1	Group 1		Group 2	Group 2	Group 2	Group 2	Group 2	Group 2	Group 2	Group 2	Group 2	Group 2
Module M1: Whole Numbers																					
M1.1 Reading and Writing Whole Numbers	Mastered	Excused	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered		Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered
M1.2 Comparing and Rounding Whole Numbers	Mastered	Excused	Mastered	Excused	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered		Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered
M1.3 Adding and Subtracting Whole Numbers	Mastered	Mastered	Mastered	Excused		Mastered	Mastered	Mastered	Mastered	Mastered		Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Excused	Excused	Mastered
M1.4 Multiplying Whole Numbers	Mastered	Mastered	Mastered	Mastered	Mastered	Excused	Mastered	Mastered		Mastered		Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Excused	Mastered
M1.5 Dividing Whole Numbers	Mastered	Mastered	Mastered	Mastered	Mastered	Excused	Mastered	Mastered		Mastered		Mastered	Mastered	Mastered	Mastered	Excused	Excused	Mastered	Mastered	Excused	Mastered
M1.6 Estimate by Rounding	Mastered	Mastered	Mastered	Mastered	Mastered	Excused	Mastered	Mastered	Mastered	Mastered		Mastered	Mastered	Mastered	Mastered	Excused	Excused	Mastered	Excused	Excused	Mastered
M1.7 Exponents and Roots	Mastered		Mastered	Mastered	Mastered	Mastered	Mastered	Mastered		Mastered		Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Excused	Mastered
M1.8 The Order of Operations	Mastered		Mastered	Mastered	Mastered	Mastered	Mastered	Mastered		Mastered		Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Current
M1.9 Factors of Whole Numbers	Mastered		Mastered	Mastered		Mastered	Mastered	Mastered		Mastered		Mastered	Mastered	Mastered	Mastered	Partial	Mastered	Mastered	Mastered	Mastered	Current
Module M2: Fractions and Mixed Numbers																					
M2.1 Basics of Fractions		Mastered	Mastered	Mastered		Mastered	Mastered			Mastered		Current	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	
M2.2 Basics of Mixed Numbers			Mastered	Mastered		Mastered	Mastered			Mastered			Mastered	Mastered	Current	Mastered	Mastered	Mastered	Current	Mastered	
M2.3 Writing a Fraction in Lowest Terms				Current		Mastered	Mastered			Mastered			Mastered	Current		Mastered	Mastered	Current		Mastered	
M2.4 Equivalent Fractions						Mastered	Mastered			Mastered					Mastered	Current	Mastered	Mastered	Mastered	Mastered	
M2.5 Multiplying Fractions							Current			Current							Mastered			Current	
M2.6 Dividing Fractions																	Mastered				
M2.7 Adding and Subtracting Like Fractions							Mastered										Mastered				

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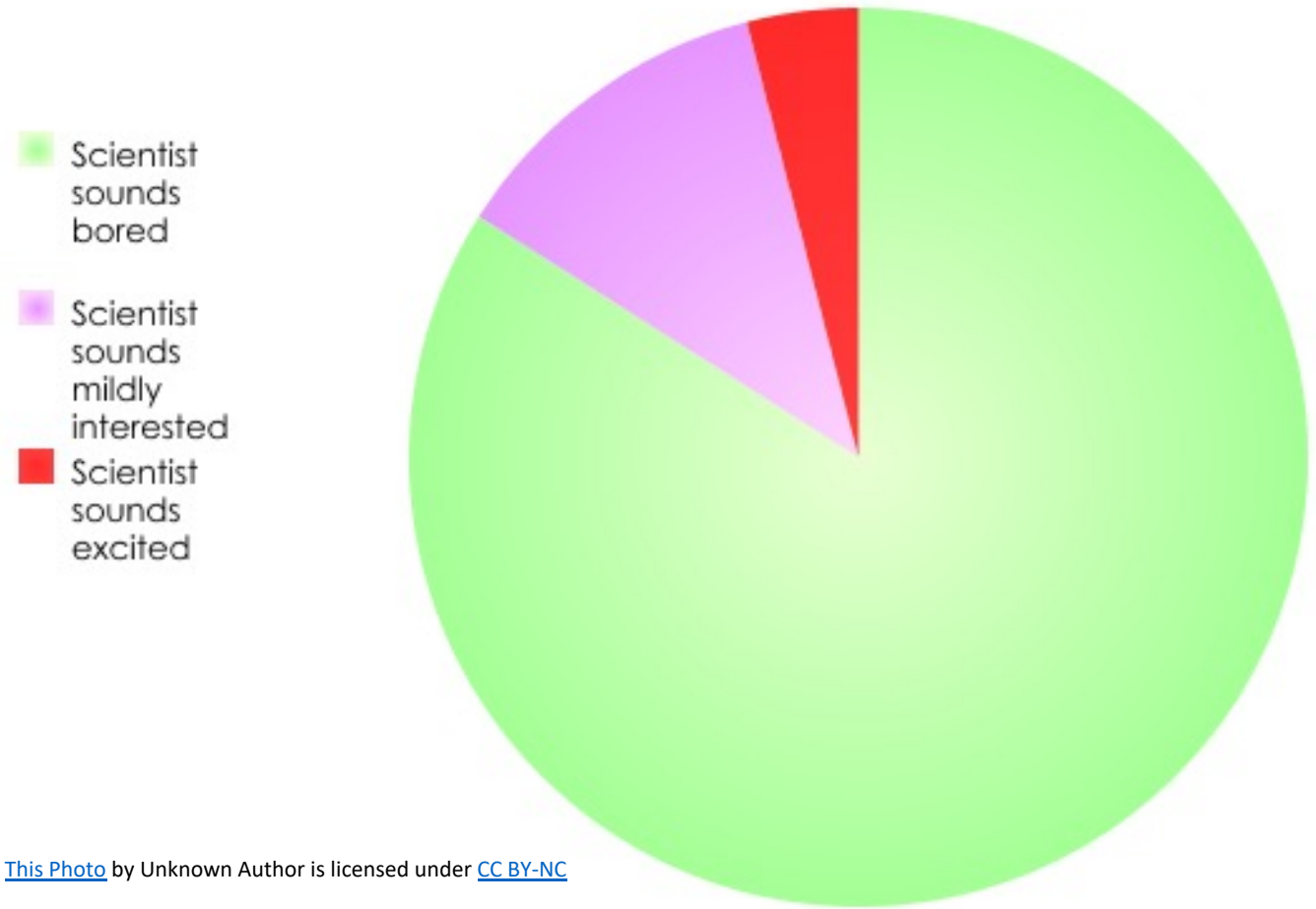
Math	Group 1	Group 1	Group 1	Group 1	Group 1	Group 1	Group 1	Group 1	Group 1	Group 1		Group 2	Group 2	Group 2	Group 2	Group 2	Group 2	Group 2	Group 2	Group 2	Group 2
Module M1: Whole Numbers																					
M1.1 Reading and Writing Whole Numbers	Mastered	Excused	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered		Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered
M1.2 Comparing and Rounding Whole Numbers	Mastered	Excused	Mastered	Excused	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered		Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered
M1.3 Adding and Subtracting Whole Numbers	Mastered	Mastered	Mastered	Excused		Mastered	Mastered	Mastered	Mastered	Mastered		Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Excused	Excused	Mastered
M1.4 Multiplying Whole Numbers	Mastered	Mastered	Mastered	Mastered	Mastered	Excused	Mastered	Mastered	Mastered	Mastered		Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Excused	Mastered
M1.5 Dividing Whole Numbers	Mastered	Mastered	Mastered	Mastered	Mastered	Excused	Mastered	Mastered	Mastered	Mastered		Mastered	Mastered	Mastered	Mastered	Excused	Excused	Mastered	Mastered	Excused	Mastered
M1.6 Estimate by Rounding	Mastered	Mastered	Mastered	Mastered	Mastered	Excused	Mastered	Mastered	Mastered	Mastered		Mastered	Mastered	Mastered	Mastered	Excused	Excused	Mastered	Excused	Excused	Mastered
M1.7 Exponents and Roots	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered		Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Excused	Mastered
M1.8 The Order of Operations	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered		Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered
M1.9 Factors of Whole Numbers	Mastered	Mastered	Mastered	Mastered		Mastered	Mastered	Mastered	Mastered	Mastered		Mastered	Mastered	Mastered	Mastered	Partial	Mastered	Mastered	Mastered	Mastered	Mastered
Module M2: Fractions and Mixed Numbers																					
M2.1 Basics of Fractions	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered		Mastered		Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered
M2.2 Basics of Mixed Numbers	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered		Mastered		Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered
M2.3 Writing a Fraction in Lowest Terms	Mastered	Current	Mastered	Mastered	Current	Mastered	Mastered	Mastered		Mastered		Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Current
M2.4 Equivalent Fractions	Mastered		Mastered	Mastered		Mastered	Mastered	Current		Mastered		Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	Mastered	
M2.5 Multiplying Fractions	Current		Current	Current		Mastered	Mastered			Mastered		Current	Current	Current	Current	Current	Mastered	Current	Current	Current	
M2.6 Dividing Fractions						Current	Mastered			Current							Mastered			Current	
M2.7 Adding and Subtracting Like Fractions							Mastered										Mastered				

Outcomes

When a scientist says research is "Exciting"...



Assessment	Pretest Score Average	Posttest Score Average
Math Fact Fluency	**70.3**	**82.5**
Math Skills**	**7.09**	**9.95**
Calculations	**22.2/45**	**24.8/45**

** denotes curriculum-based measure

T/J

Other Things We Learned

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What We Learned

- These students' academic backgrounds are very similar to other accepted students
- They were NOT more underprepared than students who did not enroll in the program
- More students could benefit from this program

T/J

What We Learned (con't)

- Many of the barriers to college readiness were related to non-academic issues:
  - lack of family support
  - other languages used in the home
  - needing support for health concerns
  - not having some soft-skills
  - needing audiological/technological support
  - "last chance" mentality

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Education Program

Into the Present…and the Future

- Addition of Social Emotional Learning (SEL) and College Readiness (CR)
- Using new adaptive curricula (Edmentum)
- STEM labs and experiences
- Expanding the program across the US to high school students
- Expanding the campus program to support more incoming students

T/J

Questions & Answers

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Any Questions?

- WE NEED YOU!
- We are actively recruiting teachers in STEM for our program.

- Sarah Sarchet – sesnca@rit.edu
  - Jessica Williams - jwtnmp@rit.edu
  - Thomastine Sarchet-Maher - tasbka@rit.edu

- For more information or to sign up for STP 2023 – step@rit.edu