

MATH NAVIGATOR®

ASSESSMENT RESOURCES

Fractions as Numbers



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Pre-Test/Post-Test Administration

test administration

For the pre-test, let students know that this test will help you determine what they already know. Explain that the module will help them learn how to solve problems that seem difficult now.

For the post-test, remind students that this test will help you determine what they have learned about fractions as numbers.

Online Testing

Once your testing window has started, you can begin testing.

- Seat students individually in front of a computer.
- Give each student a piece of scratch paper.
- Make sure that students have pencils.
- Have students use their access codes to log in to the pre-test.
- Before each student begins the test, confirm that he or she is taking the correct test.

Tell students that:

- Each question will be displayed on the computer screen. Students should select the answer they think is best by clicking on the option choice and then clicking to confirm the choice.
- After students answer a question, the next question will appear on the computer screen.
- Students may choose to skip a question and flag it to come back to before ending the test.

During the test:

- Observe students as they work to make sure that they are actively engaged in the testing process.
- Support any students who seem to find the material challenging. Encourage them to make a good estimate for any problem they find difficult. You may wish to provide manipulatives.

Once students have answered all the questions, they should follow the online prompts to conclude the test.

 After the pre-test if some students finish early, pair each of them with another student. Give each student a Student Book. Tell the students to read the instructions on page 1 of the Student Book and start working.



english language learners

Be aware that some English language learners (ELLs) may have difficulty with the language on the test. Make note of any students who appear to be having difficulty with vocabulary. These students may need additional help when new terminology is introduced in the module.



Paper-and-Pencil Test

- Print copies of the test and answer sheets for each student from ARO.
- Seat students individually.
- Distribute tests, answer sheets, and scratch paper.
- Make sure that students have #2 pencils.
- Instruct students to fill in the answers on their answer sheets.

During the test:

- Observe students as they work to make sure that they are actively engaged in the testing process.
- Support any students who seem to find the material challenging. Encourage them to make a good estimate for any problem they find difficult. You may wish to provide manipulatives.

After students finish, collect their tests, answer sheets, and scratch paper. You will need to upload students' answers to the ARO system so you can analyze the results.



After the pre-test if some students finish early, pair each of them with another student. Give each student a Student Book. Tell the students to read the instructions on page 1 of the Student Book and start working.



analyzing results

Irrespective of the method (online or paper-and-pencil) that you chose to administer the test, your students must be enrolled in the ARO system in order for you to obtain computer-generated reports.

These reports:

- Offer rich, instructionally-relevant information to teachers and administrators at the individual student, class, grade, school, and district levels.
- Include total test score performance information and item-level analysis for each student and for all students combined.
- Are important references in helping you to assess the misconceptions your students are struggling with and decide what concepts to focus on during the module.

For results:

- **Online Testing:** ARO will automatically generate performance reports.
- **Paper-and-Pencil Test:** Upload students' data to ARO. Once you have uploaded the data, ARO will generate performance reports.

Additional information about the online test reporting can be found on ARO.

Remember to give a copy of the reports to the students' regular mathematics teachers to help them in planning subsequent instruction.

reflection

 When students have finished working on their pre- or post-tests, ask them to open the Student Book to page 1 for the pre-test and page 59 for the post-test and write a response to the reflection prompt.



english language learners

It is important to point out to ELLs the progress they have made over the course of the module. Help them look back to where they were when they started so they can see how much they have progressed with both the language and the mathematics.

Checkpoint 1

7



preparation

- Make a copy of the Checkpoint 1 lesson and answer sheet for each student.
- Seat students individually and distribute the checkpoint lesson and the answer sheet to each student.
- Ask students to put their names on their answer sheets.



setting the direction

This lesson is the first checkpoint lesson of the module. Tell students that today's lesson is a checkpoint lesson; it will help them see how well they understand the concepts they have recently learned.

Tell students to read the checkpoint problems to themselves. They should complete the problems by doing the work and circling the answers in the checkpoint lesson. Then they should fill in the answers on the answer sheet.

At the end of the lesson, collect the completed answer sheets. Enter the data from each checkpoint into ARO. Open-ended questions should be included in the summation and entered either as correct or incorrect. The report generated by ARO will help you assess whether students are on track and making sufficient progress.

checkpoint



Tell students that today's lesson is a checkpoint lesson which will check how well they've learned some of the topics from the module so far.

Instruct students to read the Checkpoint problem to themselves.

Give students 6–10 minutes to complete the problems.

Ask students to be sure they have circled and written their answers in their checkpoint lesson before you collect the answer sheets.

Checkpoint 1 7

checkpoint

Solve each problem below. Write your answer on the answer sheet.
Circle each answer in your checkpoint lesson, too.

1. What fraction is shown on this number line?

A $\frac{1}{2}$ B $\frac{1}{3}$ C $\frac{1}{4}$ D $\frac{1}{5}$

2. What fraction is shown on this ruler?

A $\frac{1}{2}$ B $\frac{1}{3}$ C $\frac{1}{4}$ D $\frac{1}{5}$

3. Color in $\frac{1}{2}$ of this square.

4. How many equal parts are in this circle?

4 parts

learning from the checkpoint



Explain to the group that when students choose the wrong answer, it is usually because they have a misconception or have made a common mistake. Ask students to write a sentence or two explaining the misconception or mistake that makes the answer a common wrong answer.

Students should make their selections and then explain their reasoning in a sentence or two.



scaffolding for success

Check that students understand the term common, and have them say in their own words why it is important to look at common wrong answers.

Learning from Problem 1

The correct answer is **C**.

The number line is broken into 4 equal-sized length, so going one length between 0 and 1 is a distance of $\frac{1}{4}$.

learning from the checkpoint

Problem 1

The correct answer is **C**.

What common mistake could make someone choose **B**?

The student might think that you count the number of marks between 0 and 1 instead of the number of lengths that those marks divide the distance from 0 to 1 into.

Assessment Resources, page 14



Answer choice **B**:

Possible misconception: The student might think that you count the number of marks between 0 and 1 instead of the number of lengths that those marks divide the distance from 0 to 1 into. Since there are three marks, the student may think the first mark is at $\frac{1}{3}$ of the distance between 0 and 1.

Suggestion: Ask the student to trace the lengths between each of the marks from 0 to 1. As they trace the lengths, count the lengths so that they see there are 4 lengths.

Learning from Problem 2

The correct answer is **A**.

If you look at the first inch on the ruler, between the markings of 0 and 1, you can determine how many lengths of the size of the arrow there are between 0 and 1. Since there are two of them, the measure of the indicated length is $\frac{1}{2}$ inch.

Problem 2

The correct answer is **A**.

What common mistake could make someone choose **C**?

The student simply counts the number of markings from 0 to the indicated end of the arrow (or arc) and counts 4 of them. Then, the student mistakenly thinks that the fraction is $\frac{1}{4}$.

Assessment Resources, page 14



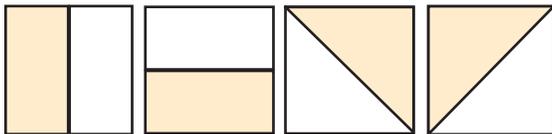
Answer choice **C**:

Possible misconception: The student simply counts the number of markings from 0 to the indicated end of the arrow (or arc) and counts 4 of them. Then, the student mistakenly thinks that the fraction is $\frac{1}{4}$.

Suggestion: Have the student cover up the rest of the ruler except the part showing the length between 0 and 1. Then, have the student draw another of the same-sized arrow (or arc) next to the one already drawn. Point out to the student that when she had two arrows (arcs) of the same size drawn side by side, they filled the length from 0 to 1 inch. So, the arrow (arc) must indicate $\frac{1}{2}$.

Learning from Problem 3

Sketch a different way to color in $\frac{1}{2}$ of the square. The sketches could be any of the following images (or any like them with the opposite size shaded in):



As long as the student divides the square into two equal-sized pieces, shading 1 of those pieces represents $\frac{1}{2}$ of the square.

Problem 3
Sketch a different way to color in $\frac{1}{2}$ of the square.

The sketches could be any of the following images (or any like them with the opposite size shaded in):

Assessment Resources, page 15

Learning from Problem 4

What tells you that there are 4 equal parts?

The circle is broken into 4 parts that are all the same size, so they are 4 equal parts. The student may then say that since they are all the same size (equal), then as she points to each wedge formed within the circle and counts, she determines that there are 4 of them.

Problem 4
What tells you that there are 4 equal parts?

Since the parts are all the same size (equal), then each wedge formed within the circle determines that there are 4 of them.

Assessment Resources, page 15



reflection



When you have about 2 minutes left, stop the discussion, even if they are not finished. Have students respond to the reflection prompt in the Student Book.



preparation

- Make a copy of the Checkpoint 2 lesson and answer sheet for each student.
- Seat students individually and distribute the checkpoint lesson and the answer sheet to each student.
- Ask students to put their names on their answer sheets.



setting the direction



This lesson is a checkpoint lesson.

Seat students individually and ask them to put their names on their answer sheets.



scaffolding for success

Remind students to circle key information in the problems to help them understand how to solve it.



english language learners

Some ELLs may be intimidated by the testing situation. Be sure to check for comprehension and provide assistance with the language in the problems as needed.

At the end of the lesson, collect the completed answer sheets. Enter the data from each checkpoint into ARO. Open-ended questions should be included in the summation and entered either as correct or incorrect. The report generated by ARO will help you assess whether students are on track and making sufficient progress.

checkpoint



Tell students that today's lesson is a checkpoint lesson which will check how well they've learned some of the topics from the module so far.

Remind students that they are to write their explanations in the checkpoint lesson in complete sentences.

Give students 6–10 minutes to complete the problems.

Ask students to be sure they have circled or written their answers in their checkpoint lesson before you collect the answer sheets.

Checkpoint 2 13

checkpoint

Solve each problem below. Circle your answer in your checkpoint lesson. Then fill in your answer on your answer sheet.

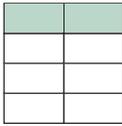
- What fraction is represented by this arrow?



A $\frac{3}{6}$ B $\frac{4}{6}$ C $\frac{2}{6}$ D $\frac{4}{2}$
- What fraction is equivalent to $\frac{4}{6}$? Use the number line to help you.



A $\frac{1}{2}$ B $\frac{2}{3}$ C $\frac{3}{6}$ D $\frac{1}{3}$
- Shade $\frac{1}{4}$ of the figure.


- Write 2 fractions equivalent to that shown by this arrow.



$\frac{1}{2}$ and $\frac{2}{4}$ are the most likely answers.

learning from the checkpoint

 Explain to the group that when students choose the wrong answer, it is usually because they have a misconception or have made a common mistake. Ask students to write a sentence or two explaining the misconception or mistake that makes the answer a common wrong answer.

Students should make their selections and then explain their reasoning in a sentence or two.

Learning from Problem 1

The correct answer is **B**.

Tamika said the answer is **D**. She was incorrect. What mistake did she make?

learning from the checkpoint

Problem 1

The correct answer to problem 1 is **B**.
Tamika said the answer is **D**. She was incorrect. What mistake did she make?

She may have counted the hops and the unmarked parts, then made those numbers into a fraction.

Assessment Resources, page 19



Answer choice **D**:

Possible misconception: Tamika may have counted the hops and the unmarked parts, then made those numbers into a fraction.

Learning from Problem 2

The correct answer is **B**.

Amir said the answer is **A**. He was incorrect. What mistake did he make?

Problem 2

The correct answer to problem 2 is **B**.
Amir said the answer is **A**. He was incorrect. What mistake did he make?

He might have counted the marks on the number line instead of the intervals between marks.

Assessment Resources, page 19



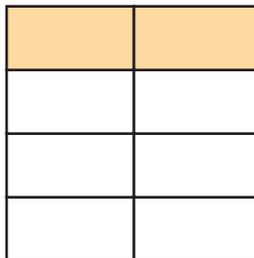
Answer choice **A**:

Possible misconception: Amir may have counted the marks on the number line instead of the intervals between marks.

Learning from Problem 3

Look at your shaded figure. What is another fraction that is equivalent to $\frac{1}{4}$?

The correct shading of the figure in problem 3 is shown below. An equivalent fraction to $\frac{1}{4}$ that students will likely name is $\frac{2}{8}$.



Problem 3
Look at your shaded figure. What is another fraction that is equivalent to $\frac{1}{4}$?

$\frac{2}{8}$

Assessment Resources, page 19

Learning from Problem 4

What is another fraction that is equivalent to $\frac{1}{2}$?

The most likely answers to problem 4 are $\frac{1}{2}$ and $\frac{2}{4}$. Equivalent fractions students may suggest in Learning from the Checkpoint are $\frac{3}{6}$ and $\frac{4}{8}$.

Problem 4
What is another fraction that is equivalent to $\frac{1}{2}$?

$\frac{3}{6}$ and $\frac{4}{8}$ are also equivalent.

Assessment Resources, page 19



reflection



When you have about 2 minutes left, stop the discussion, even if they are not finished. Have students respond to the reflection prompt in the Student Book.

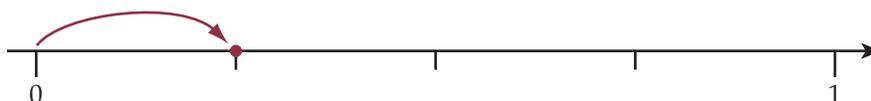
Checkpoint 1



checkpoint

Solve each problem below. Write your answer on the answer sheet.
Circle each answer in your checkpoint lesson, too.

1. What fraction is shown on this number line?



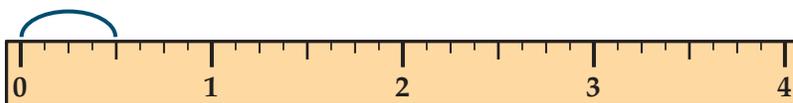
A $\frac{1}{2}$

B $\frac{1}{3}$

C $\frac{1}{4}$

D $\frac{1}{5}$

2. What fraction is shown on this ruler?



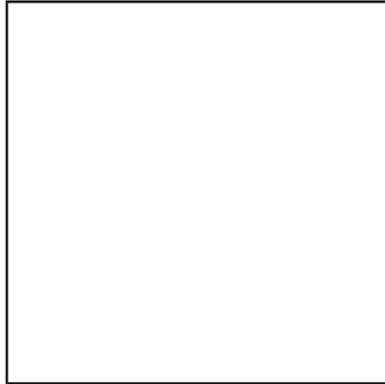
A $\frac{1}{2}$

B $\frac{1}{3}$

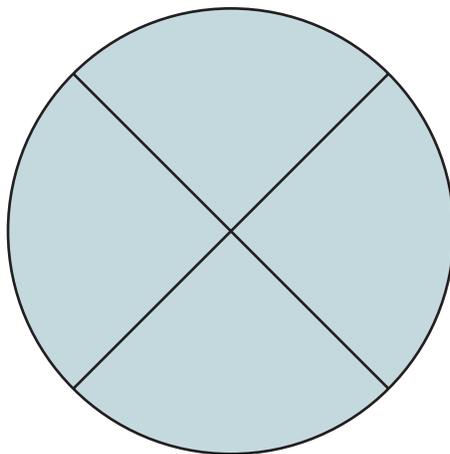
C $\frac{1}{4}$

D $\frac{1}{5}$

3. Color in $\frac{1}{2}$ of this square.



4. How many equal parts are in this circle?



 **learning from the checkpoint**

Problem 1

The correct answer is **C**.

What common mistake could make someone choose **B**?

Problem 2

The correct answer is **A**.

What common mistake could make someone choose **C**?

Problem 3

Sketch a different way to color in $\frac{1}{2}$ of the square.

Problem 4

What tells you that there are 4 equal parts?

Class Information

School _____

City _____ State _____

Teacher (mathematics class) _____

Student Information

Grade _____

First name _____

Last name _____

Date of birth _____ (month) _____ (day) _____ (year)

Male Female

How many years have you been at this school? _____ years

Do you usually speak English at home? Yes No

Does anyone in your home usually speak a language other than English?

Yes No

Name _____

	A	B	C	D
1.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Problem **3.**

Write a complete solution below to this problem.

Problem **4.**

Write a complete solution below to this problem.

Checkpoint 2

13

checkpoint

Solve each problem below. Circle your answer in your checkpoint lesson. Then fill in your answer on your answer sheet.

1. What fraction is represented by this arrow?



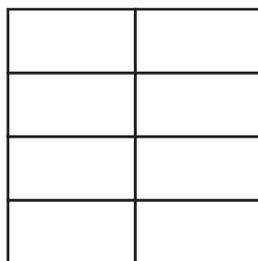
- A** $\frac{3}{6}$ **B** $\frac{4}{6}$ **C** $\frac{2}{6}$ **D** $\frac{4}{2}$

2. What fraction is equivalent to $\frac{4}{6}$? Use the number line to help you.

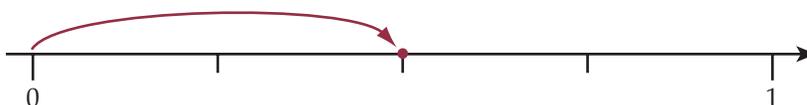


- A** $\frac{1}{2}$ **B** $\frac{2}{3}$ **C** $\frac{3}{6}$ **D** $\frac{1}{3}$

3. Shade $\frac{1}{4}$ of the figure.



4. Write 2 fractions equivalent to that shown by this arrow.



 **learning from the checkpoint**
.....**Problem 1**

The correct answer to problem 1 is **B**.

Tamika said the answer is **D**. She was incorrect. What mistake did she make?

Problem 2

The correct answer to problem 2 is **B**.

Amir said the answer is **A**. He was incorrect. What mistake did he make?

Problem 3

Look at your shaded figure. What is another fraction that is equivalent to $\frac{1}{4}$?

Problem 4

What is another fraction that is equivalent to $\frac{1}{2}$?

Class Information

School _____

City _____ State _____

Teacher (mathematics class) _____

Student Information

Grade _____

First name _____

Last name _____

Date of birth _____ (month) _____ (day) _____ (year)

Male Female

How many years have you been at this school? _____ years

Do you usually speak English at home? Yes No

Does anyone in your home usually speak a language other than English?

Yes No

Name _____

	A	B	C	D
1.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Problem 3.

Write a complete solution below to this problem.

Problem 4.

Write a complete solution below to this problem.