# 4th Grade
# Number and Operations - Fractions
# Daily Practice Items
# and
# Answer Keys

## 5 Days

# NUMBER AND OPERATIONS - FRACTIONS: PRACTICE ITEMS OVERVIEW

## Resources:

Attached you will find **practice items** for Number and Operations - Fractions. These practice items are packaged so that you will have weekly items to use in your classroom as bell ringers or engagement items. Three items matching this domain have been provided for each day of this weekly set of practice items. No more than 15-20 minutes a day should be spent on these items in order for students to solve the problems and to debrief whole group.

The purpose of using these practice items daily is to be able to formatively assess student understanding, or the lack of it, in this domain. Being able to gather evidence of student learning and misconceptions in the moment will give you the flexibility to change your instruction to meet their needs. As the instructional decision-maker, you are able to adjust your methods for whole class or small groups to address student misconceptions and move them toward proficiency.

The practice items represent a variety of standards for Number and Operations - Fractions. One week of practice items have been selected for this domain. Because there is only one weeks, not every standard will be addressed.

The goal is for you to have a total of 10 weeks of practice items that represent the 5 domains in 4$^{th}$ grade. We would like for you to use these items for a 10 week period between the time you receive them and the end of January. If used daily for student practice, in accordance with our recommendations or tips, the outcome will be an improvement in ACT Aspire test scores.

At the end of each weekly packet, you will find an answer key for your use. Some items include possible responses that students might have on the constructed response items.

Separate resources available to you are **tasks** addressing each of the domains. These tasks and practice items are interchangeable. If your students, or a group of students, are ready for problems that are a bit more rigorous, feel free to use the tasks. These tasks require students to think about an efficient strategy to solve the problem, show their work and justify their reasoning. This is the ultimate goal for what we want students to be able to do.

## Recommendations or Tips:

When administering the practice items, please take the time to have the students read through the daily items to see if they have any questions about vocabulary or what the problem is asking them to do. Taking the time to do these things now, will help assure that the students are familiar with mathematical vocabulary and different question types before the actual test.

## Providing Feedback to Students:

Since the purpose of the test items is to get at student understanding, it is not enough just to give the practice items as bell ringers or engagement items. A key part of the process in advancing student thinking, is to debrief the practice items and provide specific feedback on the student's thinking and performance. The key to getting at student understanding and thinking is to always have them explain how they solved the problem. This can be done during the sharing out process by asking effective questions. It is difficult to make student

thinking and understanding visible by just giving **multiple choice** questions and determining whether their response is correct or incorrect. Asking questions similar to the ones below can help students verbalize the reasoning for their choice:

- To get the right answer, what concept do you have to be aware of?
- Why are the other 3 answers not correct?
- What strategy did you use to solve the problem? Why did you use that particular strategy?
- Is there another strategy that you could use to solve the problem?

The above questions can be used with **short response** and **constructed response** also. Other questions to consider when prompting students to verbalize or justify their thinking are:

**Monitoring as students work:**

- What is the problem asking you to find?
- How would/did you start the problem?
- What else do you need to do?

**During debriefing:**

- What did the problem ask you to do?
- What information do you see in the problem?
- What did you do <u>first</u> to solve this problem?
- Who else started this same way?
- What did you do next?
- Who started a different way?
- What are some strategies that you heard today that you would like to try when solving a similar problem in the future?

## Answer Key:

The information above is intended to help teachers get at student understanding of the mathematical idea(s) in each problem. Also provided is an Answer Key for each set of items. The Answer Key provides more information on the expected student response for each item, as well as the standard being addressed. While it is important for students to get the answer right, it is equally important for them to understand how their thinking leads or does not lead to a correct solution. Incorrect solutions set the stage for teachable moments!!!!

Name _____ Date _____

Daily Practice - Number and Operations – Fractions DAY 1

1. Mark says 1/4 of his candy bar is smaller than 1/5 of the same candy bar.

   Is Mark right? ⬭ Yes ⬭ No

   Draw a picture or use words to explain why you think Mark is right or wrong.

2. Together, Sara and Brendan have 20 pencils. Sara says 1/4 of the pencils are hers. Brendan says 15 of the pencils belong to him. Explain how they both could be right. Use words or drawings.

3. $\frac{2}{5}+\frac{3}{5}+\frac{4}{5}=$

   A. $\frac{7}{5}$

   B. $\frac{8}{5}$

   C. $\frac{9}{5}$

   D. $\frac{9}{15}$

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2003, 2007 and 2013 Mathematics Assessments.

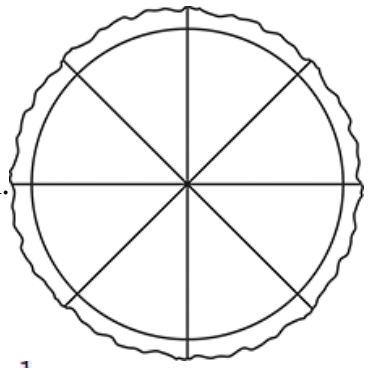
Name _____ Date _____

Daily Practice - Number and Operations – Fractions DAY 2

1. Kim, Les, Mario, and Nina each had a string 10 feet long.
   Kim cut hers into fifths.
   Les cut his into fourths.
   Mario cut his into sixths.
   Nina cut hers into thirds.
   After the cuts were made, who had the longest pieces of string?

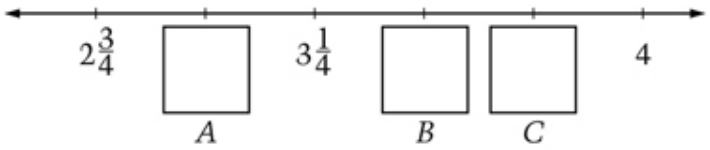
   A. Kim
   B. Les
   C. Mario
   D. Nina

Nick has a whole pizza.



2. Nick says he will eat $\frac{1}{2}$ of the pizza.
   He says he will give $\frac{3}{8}$ of the pizza to Sam and $\frac{3}{8}$ of the pizza to Joe.
   Can Nick do what he says?
   ◯ Yes ◯ No
   Explain or show why or why not.

3. Jorge left some numbers off the number line below. Fill in the numbers that should go in *A*, *B*, and *C*.



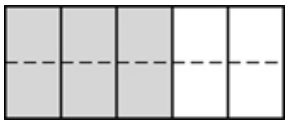

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2009 and 2013 Mathematics Assessments.

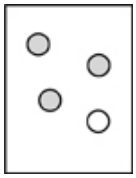
Name _____ Date _____

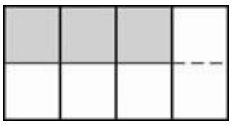
Daily Practice - Number and Operations – Fractions DAY 3

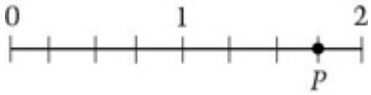
1. Which picture shows that $\frac{3}{4}$ is the same as $\frac{6}{8}$?

A. 

B. 

C. 

D. 




2. On the number line, what number does *P* represent?

A. $\frac{2}{3}$

B. $\frac{3}{4}$

C. $1\frac{2}{3}$

D. $1\frac{3}{4}$

3. Which fraction has a value closest to $\frac{1}{2}$?

A. $\frac{5}{8}$

C. $\frac{2}{2}$

B. $\frac{1}{6}$

D. $\frac{1}{5}$

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2009 Mathematics Assessment.

Name _____ Date _____

Daily Practice - Number and Operations – Fractions DAY 4

1. What fraction of the figure is shaded?

Answer: _____


2. These three fractions are equivalent. Give <u>two</u> more fractions that are equivalent to these.

3. $\frac{4}{6} - \frac{1}{6} =$

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2005 and 2007 Mathematics Assessments.

Name _____ Date _____

Daily Practice - Number and Operations – Fractions DAY 5

1. Luis had two apples and he cut each apple into fifths. How many pieces of apple did he have?

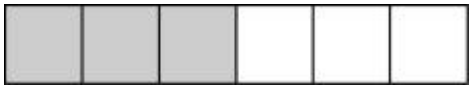
   A. $\frac{2}{5}$
   B. 2
   C. 5
   D. 10

   Draw a model to represent your solution:

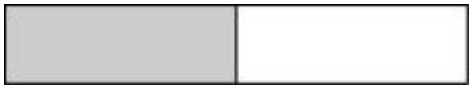
2. Jim has $\frac{3}{4}$ of a yard of string which he wishes to divide into pieces, each $\frac{1}{8}$ of a yard long. How many pieces will he have?

   A. 3
   B. 4
   C. 6
   D. 8

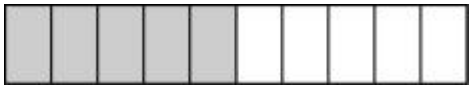
3. The shaded part of each strip below shows a fraction.

   A. 

   This fraction strip shows 3/6.

   B. 

   What fraction does this fraction strip show? _____

   C. 

   What fraction does this fraction strip show? _____

   What do the fractions shown in A, B, and C have in common?

   Shade in the fraction strips below to show two different fractions that are equivalent to the

   ones shown in A, B, and C.

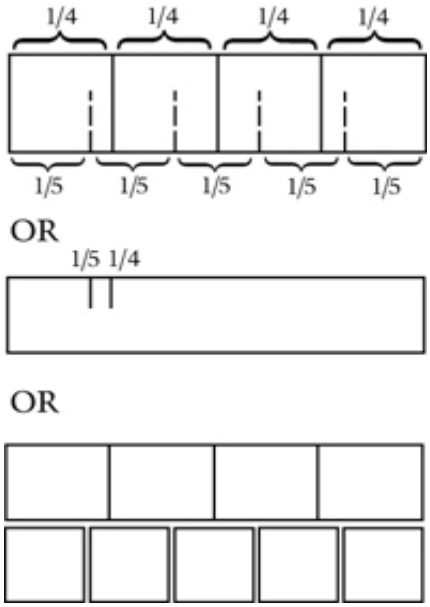
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2003 and 2005 Mathematics Assessments.

## Number and Operations – Fractions ANSWER KEY DAY 1

**Foundational Standard – 3rd Grade #15d**

1. **Solution:**

A verbal explanation, such as: The more parts you divide something into, the smaller each part has to be.




**Foundational Standard – 3rd Grade #15c**

2. **Solution:**

They can both be right because 1/4 of 20 = 5 and 20 - 5 = 15.

OR

1/4 is 5 and 3/4 is 15.

OR

| Sara 1/4 or 5 | Brendan 3/4 or 15 |
|---|---|
| \|\|\|\|\| | \|\|\|\|\| \|\|\|\|\| \|\|\|\|\| |

In this question the student was given information in two different ways—a fractional part and a number of items—and the student needed to justify that these two interpretations of the same situation were consistent. To answer the question, the student needed to observe that the fractional part has meaning in terms of the number of items, or that the number of items can be represented as a fractional part of the whole amount.

**Standard #14a**

3. The correct solution is: C. $\frac{9}{5}$

## Number and Operations – Fractions ANSWER KEY DAY 2

**Foundational Standards – 3rd Grade #13 and 15d**

1. The correct solution is: D. Nina

**Standard #13**

2. The correct answer is: No

   Explanation:

   If Nick eats $\frac{1}{2}$ of the pizza, that is the same as $\frac{4}{8}$. If he gives $\frac{3}{8}$ to Sam, there is only $\frac{1}{8}$ left for Joe.

   OR

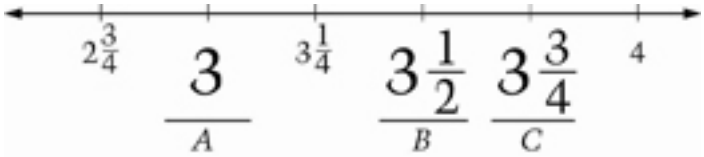
   If he gives away $\frac{3}{8}+\frac{3}{8}=\frac{6}{8}$, he'll have only $\frac{2}{8}$ for himself, and $\frac{2}{8}<\frac{1}{2}$.

   OR

   Student indicates who got which pieces of pizza and shows that there is not enough.

**Foundational Standard – 3rd Grade #13**

3.




$2\frac{4}{4}$ is acceptable for A (or any equivalent)

$3\frac{2}{4}$ is acceptable for B (or any equivalent)

$3\frac{3}{4}$ is acceptable for C (or any equivalent)

## Number and Operations – Fractions ANSWER KEY DAY 3

**Standard #12**

1. The correct solution is:

A. 

**Foundational Standard – 3rd Grade #14**

2. The correct solution is: D. $1\frac{3}{4}$

**Standard #13**

3. The correct solution is:

A. $\frac{5}{8}$

## Number and Operations – Fractions ANSWER KEY DAY 4

**Foundational Standard – 3rd Grade #13**

1. The correct solution is: 2/5

**Standards #12 and #13**

2. Possible solutions:

Any 2 fractions equivalent to 1/2 other than those given.

Possibilities: 1/2, 1/4, 6/12, etc.

**Standard #14a**

3. B. 3/6

## Number and Operations – Fractions ANSWER KEY DAY 5

**Standard #14b**

1. The correct solution is: D. 10

Students should determine the number of pieces by cutting the two wholes into fifths.

**Standard #14**

2. The correct solution is: C. 6

**Standard #12**

3. There are a total of 5 responses required for this problem:

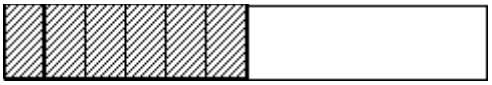
**Response 1:**
Part 1 (B) 1/2
Acceptable forms of 1/2: 1 out of 2, one half, 1:2, 1 2, 50%, 1\2, $\frac{1}{2}$
Note: If student draws a model for B or C and names it correctly, it will be accepted.

**Response 2:**
Part 1 (C) 5/10 or 1/2

**Response 3:**
Part 2. There are many possible answers, e.g.,

They are equivalent fractions.
They all equal 1/2.
They are all equal.
They are all the same size.
They all end at the same place.
They are all 3 centimeters long.
The bottom number is twice the top number.

**Responses 4 and 5:**
Part 3. Any fraction equivalent to 1/2, other than those shown in Part 1
(2 different responses required), e.g.,



6/12 acceptable (but needs "6/12"since division marks on right are missing.)