



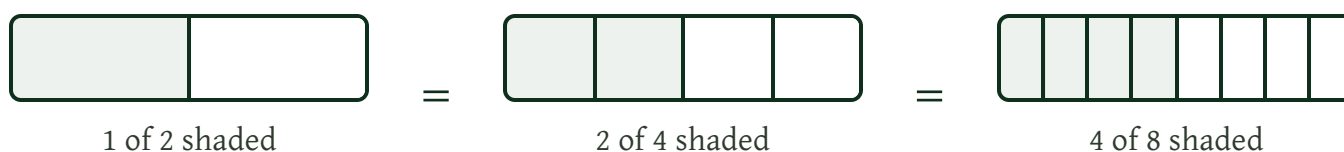
Stuck? Scan
for the anchor
chart

Same Number, New Name

One half and two fourths are not two answers.

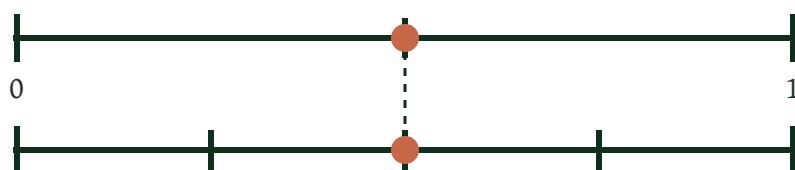
They are **one number** with two names.

1 Cut every piece again and nothing is lost



The shading never moved. Only the number of cuts changed.

2 Equal fractions land on the same place



The top line takes **2 jumps** to reach 1. The bottom line takes **4**. One half and two fourths stop at the same spot.

3 Whole numbers have fraction names too



Three wholes, each one cut into a single piece. The denominator, the bottom number, can be 1.

Roots of Reason

Name _____

Date _____

Find the Twins



1 of 3

Cut every piece in two and the picture
keeps
the same shading with **twice as many**
names.



2 of 6

1. The top strip is already shaded. Cut the bottom strip along the dotted marks, then shade **the same amount** and write what you shaded.



$$\frac{1}{2} = \boxed{} \text{ of } \boxed{}$$



$$\frac{1}{3} = \boxed{} \text{ of } \boxed{}$$



$$\frac{3}{4} = \boxed{} \text{ of } \boxed{}$$



2. Look at your three answers. Every time you cut each piece in two, what happened to the two numbers in the fraction?

☐ both numbers doubled

☐ only the bottom doubled

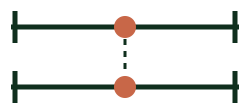
☐ both numbers stayed the same

The amount of the strip that is shaded _____

Roots of Reason

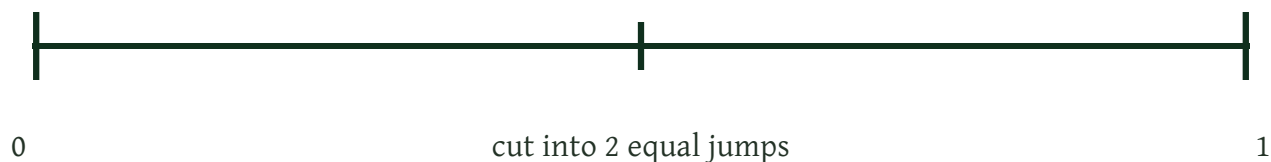
Name _____ Date _____

Same Point, Two Names



If two fractions are the same number, $\frac{1}{2} = \frac{2}{4}$ they are at **the same point** on the line.

- Both lines are the same length. Put a dot at $\frac{1}{2}$ on the top line and a dot at $\frac{2}{4}$ on the bottom line. Then draw a straight line between your two dots.



Your line between the dots goes straight down sideways

- This line is cut into **6 equal jumps**. Put a dot at $\frac{4}{6}$. Then write the name that same point has on a line cut into thirds.



$\frac{4}{6} =$ of How many sixths make one third? _____

Roots of Reason

Name _____ Date _____

Whole Numbers as Fractions



4 of 4

Shade every piece and you are back to **one whole**.

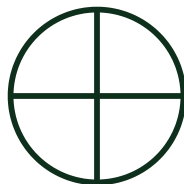
Count wholes and the bottom number is 1.

$$\frac{4}{4} = 1 = \frac{1}{1}$$

1. Shade **every** piece, then write the fraction you shaded and what it equals.



of =



of =



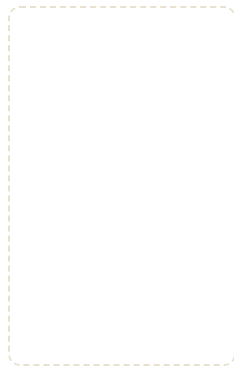
of =

Roots of Reason

Name _____ Date _____

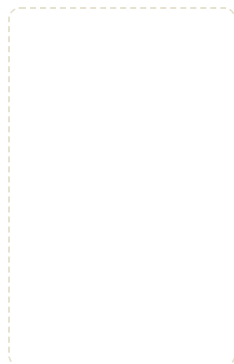
2. Draw the wholes, then finish the fraction. Each whole stays in **one piece**.

2 wholes



$$= \frac{2}{\boxed{}}$$

5 wholes



$$= \frac{\boxed{}}{\boxed{}}$$

3. **Read it backward.** Write the whole number each fraction equals.

$$\frac{8}{1} = \boxed{} \quad \frac{6}{6} = \boxed{}$$

One of these is a pile of wholes. The other is a whole cut up and put back together.

Roots of Reason

Name _____ Date _____

Which One Is Bigger



same size pieces

Compare the **count** when the pieces match.

Compare the **piece** when the count matches.



same count

1. Same denominator. Shade each strip, then circle the bigger fraction.

$\frac{3}{8}$



$\frac{3}{8}$

$\frac{5}{8}$

$\frac{5}{8}$



Same size pieces, so just count them.

2. Same numerator. Shade each strip, then circle the bigger fraction.

$\frac{2}{3}$



$\frac{2}{3}$

$\frac{2}{6}$

$\frac{2}{6}$



Same count, so the bigger piece wins.

3. Different wholes. Ada ate half of a small pizza. Ben ate a third of a giant pizza. Ben ate more food. Did Ada break the rule that one half is bigger than one third?



yes, the rule broke

no, the wholes were different

Comparing fractions only works when both come from the



Roots of Reason

Answer Key and Teacher Notes

Find the twins (page 2)

1. *2 of 4 · 2 of 6 · 6 of 8* 2. *both numbers doubled*; the shaded amount *did not change*. Shading must line up with the strip above it, not just count correctly.

Same point, two names (page 3)

1. Both dots land on the middle tick, so the line between them goes *straight down* 2. Dot on the 4th tick; *2 of 3*; 2 sixths make one third.

Whole numbers as fractions (pages 4 and 5)

1. *3 of 3 = 1 · 4 of 4 = 1 · 6 of 6 = 1* 2. Two whole shapes, *2/1*; five whole shapes, *5/1* 3. *8* and *1*

Which one is bigger (page 6)

1. *5/8* 2. *2/3* 3. *No, the wholes were different*. One half is bigger than one third only when both come from the *same whole*.

Set 4 ends the strand and teaches no shortcut. Equivalence is taught as re-cutting rather than as multiplying the top and bottom by the same number, because a student who only knows the rule cannot tell whether 2/4 got bigger. Page 3 is the check that matters: if the two dots do not land together, the jumps were not equal, and the fix is on Set 3 page 4, not here. Page 5 does not compare two fractions with different numerators and different denominators, which is Grade 4 work. Task 3 is the one to talk through out loud, because the same-whole condition is the part students drop first and the part every later comparison depends on.