Equivalent Fractions by Number Lines and Area Models

A math resource designed and created to assist students in developing a better understanding of basic fraction and equivalent fraction concepts.

Blaine Helwig

September 2026

Equivalent Fractions Area and Number Lines – Introduction

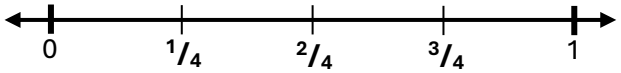
This 18-page third grade student resource includes full solutions and is structured sequentially to mirror the student's progressive understanding of the topic. Designed deliberately as half-sheets, it serves two distinct purposes: it allows for rapid classroom implementation and facilitates sustained, prolonged practice over time. Because this resource is intended for independent practice, teachers should provide comprehensive instruction prior to assigning it.

To ensure that all students achieve true content mastery, educators must shift away from traditional pedagogical methods. Instead, they should integrate daily spaced repetition into their routines, providing students with the consistent review needed to reach threshold mastery levels. All resources and detailed implementation guides are available as free downloads can be located at the website listed in the footer. These resources explain exactly the methodology to seamlessly embed this pedagogical system within a standard daily math block.

The successful implementation of these resources relies entirely on educators explicitly communicating the underlying thinking processes to their students. Because teaching is fundamentally the articulation of useful, effective, or efficient cognitive frameworks, instructors must actively model these concepts during daily interactions. Without this explicit guidance, many students will fail to grasp the most salient points of the lesson. ***But the key will always be consistent practice!***

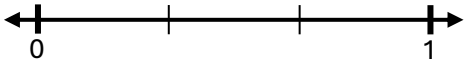
Salient Point 1: Fraction vocabulary that must be mastered by students:

- **numerator** - The top number of a fraction that shows how many equal pieces you have. Example: ½ - the 1 is called the numerator.
- **denominator** - The bottom number of a fraction that represents the total number of **equal** pieces in the whole. Example: ½ - the 2 is called the denominator.
- **proper fraction** - A fraction where the top number (numerator) is smaller than the bottom number (denominator). Its value is always less than 1. Examples: $^{3}/_{4}$, $^{1}/_{2}$, $^{8}/_{9}$, $^{1}/_{6}$, and $^{10}/_{13}$
- **improper fraction** - A fraction where the top number (numerator) is larger than or equal to the bottom number (denominator). Its value is 1 or greater. Examples: $^{4}/_{4}$, $^{2}/_{2}$, $^{5}/_{4}$, $^{6}/_{1}$, and $^{19}/_{3}$
- **fractional number lines** - A number line divided into equal segments between whole numbers to show where fractions live.



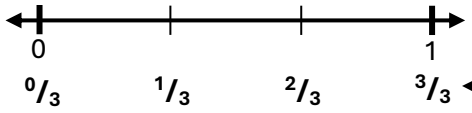
Salient Point 2: While standardized tests assess qualitative understanding, and many Tier 1 commercial curricula introduce qualitative concepts first, ***this pedagogical order is fundamentally flawed***. Qualitative reasoning relies entirely on a solid quantitative foundation. For example, before students can conceptually analyze why $^{2}/_{3}$ is larger than $^{2}/_{6}$, they must first master basic quantitative fundamentals, including foundational vocabulary and fractions as distinct numerical entities. Consequently, many students struggle with arithmetic understanding because commercial resources direct educators to high-level conceptual instruction before students are adequately prepared, or educators do not address prior numeracy skill gaps before introducing dependent content in their pedagogy.

Salient Point 3: Teaching fractional number lines. (Initially, this concept is challenging for many 3rd graders; however, consistent language ensures all students learn the content to mastery.)



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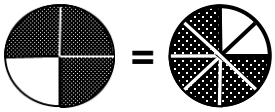
Begin with a blank number line from 0 to 1, as shown above, in thirds. Ask students, *"What is the denominator of this fractional number line?"* or "*Show me with your fingers, is this fractional number line separated in to, halves, thirds, or fourths?"* Students will invariably miss this first number line and say, *"Halves."* Since there are two vertical marks between 0 and 1. Show students with your fingers that there are 3 equal spaces between 0 and 1. Cycle through a few more example number lines divided into halves, fourths, and fifths. Guide students until they automatically count the equal spaces rather than the internal tick marks. Label the number line, as shown below, write under the 0, '$^0/_3$' and then, $^1/_3$', '$^2/_3$', and '$^3/_3$' under the 1.



The $^3/_3$ under the 1 indicates the NL is correct, since that improper fraction equals 1 whole.

Mantra for students: "*Count the equal spaces, label the lines!"*

Salient Point 4: Utilizing equal area models provides the most intuitive pathway for students to conceptualize and visually identify equivalent fractions. For instance, $^3/_4 = {}^2/_8$ both occupy the same area. This method should be used with linear bar fractions, circular fractions, and rectangular fraction models.



Salient Point 5: It is recommended that four area models be shown repeatedly until students memorize them as equalities, as they would for a simple math fact. The following four fractions repeatedly appear on standardized tests in third grade: $¼ = {}^2/_8$, $¾ = {}^6/_8$, $^1/_3 = {}^2/_6$, and $^2/_3 = {}^4/_6$.

A teacher can also elect to show these four equivalencies by the means of identity property of multiplication.

$$\frac{3}{4} = \frac{6}{8} \Rightarrow \frac{3}{4} \overset{x\,2}{=} \frac{6}{8} \Rightarrow$$

Since $^2/_2$ equals 1, the student is multiplying the fraction ¾ by 1 (i.e., The Mult. Identity Principal).

Salient Point 6: To align with standardized assessments, this resource series includes specialized modules for evaluating fraction equality (=) and inequality (< , >). Because both types of evaluation require strong comparison skills, teachers should train students to utilize a fractional number line focused on three core anchor strategies:

First, **near zero:** If the numerator is very small relative to the denominator (e.g.,$^1/_9$, $^1/_{10}$, $^2/_{100}$), the fraction's overall value is close to zero.

Second, **near one-half:** If the numerator is exactly or approximately half of the denominator, the fraction is equal or close to ½.

Third, **near one-whole:** If the numerator and denominator are exactly or close to the same number (e.g., $^7/_8$, $^3/_3$, $^7/_7$, $^9/_{10}$, $^{96}/_{100}$), the fraction is equal or close to one whole.

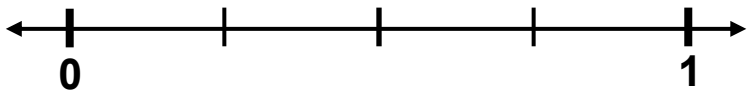
(**Note:** Practice with students each day for 1 to 2 minutes until all students master this skill.) – **KEY to success!**

Salient Point 7: Third graders typically learn to compare fractions by looking at the denominators when the numerators are the same (e.g., $^2/_7$ and $^2/_3$). This concept can be highly counterintuitive for young students. They must learn that because the denominator dictates the number of equal parts, a ***smaller denominator means a larger piece***. To master this, students need to visualize fractions independently to build a strong mental comparison. Providing repeated daily practice (i.e., spaced repetition pedagogy) that forces students to focus on the denominator when numerators match will quickly build this level of understanding.

Equivalent Fractions – Area and Number Lines – V1

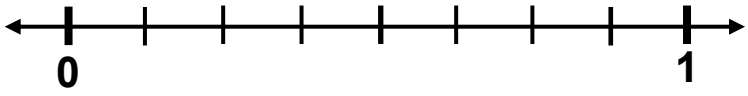
Directions: Complete each problem as instructed and answer the questions.

1. Write the fractions on the line provided.



_____ _____ _____ _____ _____

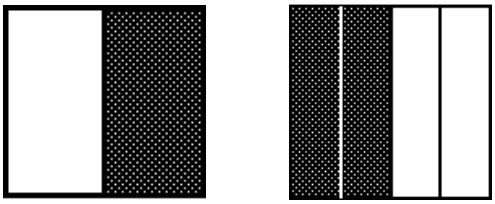
A.) Which fraction is equal to ½? _____



_____ _____ _____ _____ _____ _____ _____ _____ _____

B.) Which fraction is equivalent to 1 Whole? _____

2. Write the fractions on the line provided.



_____ _____

A.) Why are the fractions equal?

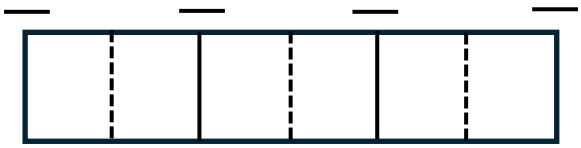
_____

B.) Ring all fractions equal to ½.

$\frac{3}{6}$ $\frac{1}{3}$ $\frac{4}{8}$ $\frac{5}{10}$ $\frac{3}{9}$

$\frac{4}{9}$ $\frac{8}{16}$ $\frac{7}{16}$ $\frac{50}{100}$ $\frac{6}{12}$

3. Write the fractions on the line provided.



_____ _____ _____ _____ _____ _____ _____

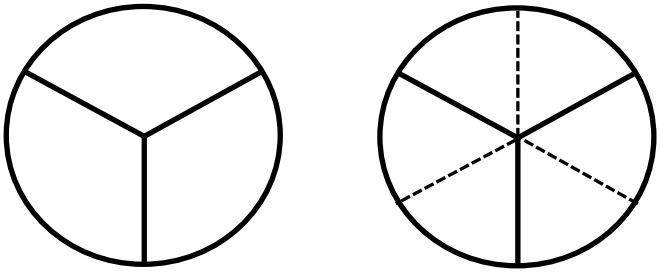
A.) Write two fractions that are equal.

_____

B.) Why does $^1/_3$ equal $^2/_6$ on the fraction bar?

_____

4. Write the fractions inside the sections.



A.) Write two fractions that are equal.

_____

B.) What does 6 represent in the fraction $^5/_6$?

_____

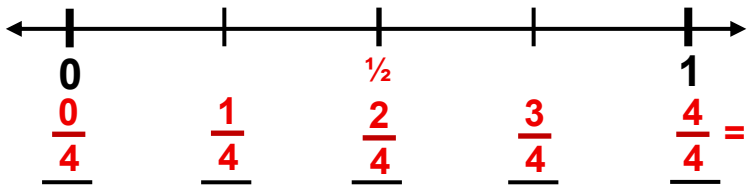
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Equivalent Fractions – Area and Number Lines – V1

Directions: Complete each problem as instructed and answer the questions.

SOLUTIONS

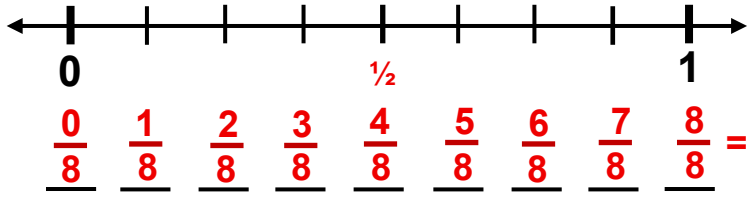
1. ***"Count the EQUAL spaces – Label the Lines!"***
Write the fractions on the line provided.



Since 1 = 4/4, the N.L. is correct!

A.) Which fraction is equal to ½? 2/4

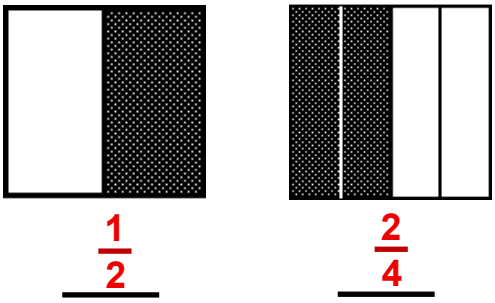
½ is at the mid-point (stress this word) – den. is exactly half num.



½ is at the mid-point – den. is exactly half num (4/8).

B.) Which fraction is equivalent to 1 Whole? 8/8

2. Write the fractions on the line provided.



1/2 2/4

A.) Why are the fractions equal? 1/2 = 2/4

Occupy the same area.

Repeat each day, until students recognize 1/2.

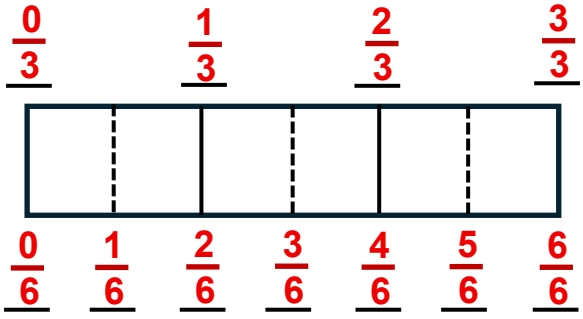
B.) Ring all fractions equal to ½.

3/6 1/3 4/8 5/10 3/9

4/9 8/16 7/16 50/100 6/12

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3. **Treat the Bar Diagram like a Number line.**
Write the fractions on the line provided.



"Count the EQUAL spaces – Label the Lines!"

A.) Write two fractions that are equal.

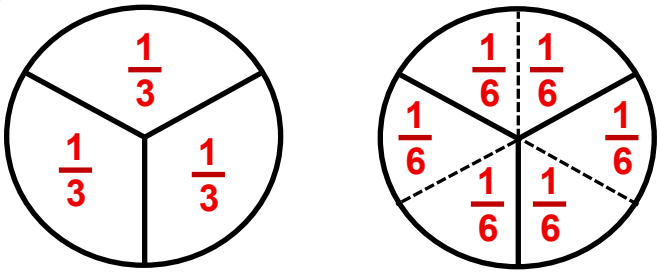
1/3 = 2/6 & 2/3 = 4/6 & 3/3 = 6/6 = 1

B.) Why does 1/3 equal 2/6 on the fraction bar?

Occupy the same area for each fraction.

Shade equal areas so 1/3 = 2/6, visually, the fractions MUST be equal.

4. Write the fractions inside the sections.



Equal areas – equate the fractions. Shade to show students. Write equality as in A.) below.

A.) Write two fractions that are equal.

1/3 = 2/6 & 2/3 = 4/6 & 3/3 = 6/6 = 1

B.) What does 6 represent in the fraction 5/6?

6 Total EQUAL parts – Stress EQUAL!!!

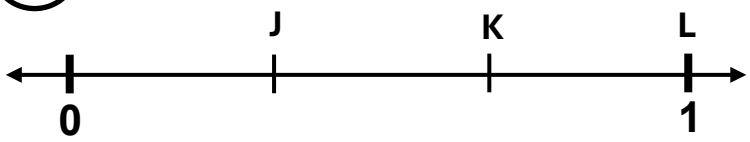
Typical Q on STAAR – 3rd Grade.

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Equivalent Fractions – Area and Number Lines – V2

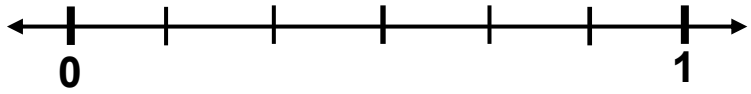
Directions: Complete each problem as instructed and answer the questions.

1. Write the fractions on the line provided.



_____ _____ _____ _____

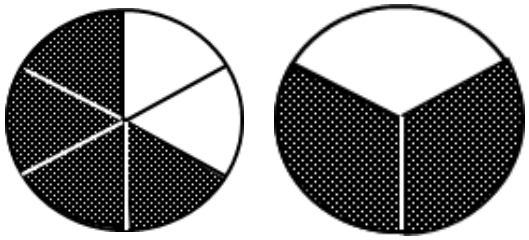
A.) Which fraction is located at Pt. **K**? _____



_____ _____ _____ _____ _____ _____ _____

B.) Which fraction is equivalent to **½**? _____

2. Write the fractions on the line provided.



_____ _____

A.) Why are the fractions equal?

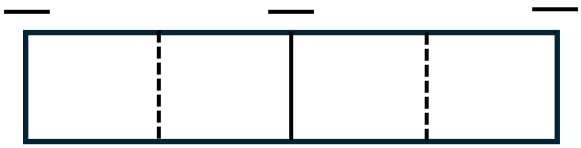
_____

B.) Ring all fractions equal to ½.

$\frac{7}{14}$ $\frac{2}{3}$ $\frac{9}{18}$ $\frac{10}{20}$ $\frac{9}{9}$

$\frac{4}{8}$ $\frac{5}{10}$ $\frac{9}{16}$ $\frac{50}{100}$ $\frac{8}{16}$

3. Write the fractions on the line provided.



_____ _____ _____ _____ _____

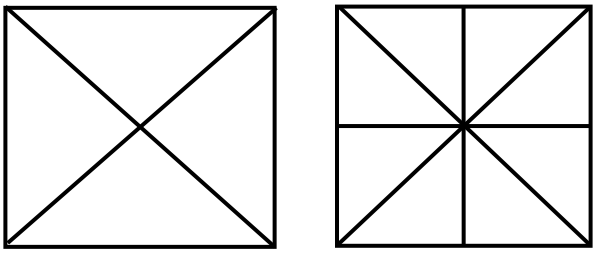
A.) Write two fractions that are equal.

_____

B.) Why does $^1/_2$ equal $^2/_4$ on the fraction bar?

_____

4. Write the fractions inside the sections.



A.) Write <u>three</u> fractions that are equal.

_____

B.) Based on the denominator, why is $\frac{3}{8} < \frac{3}{4}$?

_____

_____

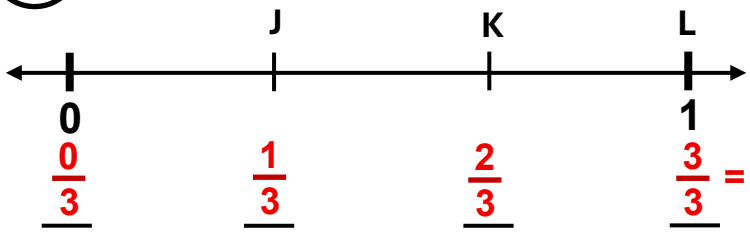
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Equivalent Fractions – Area and Number Lines – V2

Directions: Complete each problem as instructed and answer the questions.

SOLUTIONS

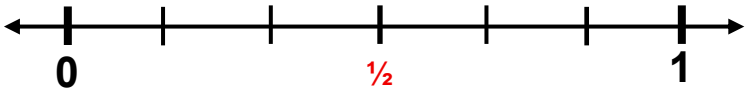
1. ***"Count the EQUAL spaces – Label the Lines!"***
Write the fractions on the line provided.



$\frac{0}{3}$ $\frac{1}{3}$ $\frac{2}{3}$ $\frac{3}{3} = 1$

Since 1 = 3/3, the N.L. is correct!

A.) Which fraction is located at Pt. **K**? $\frac{2}{3}$

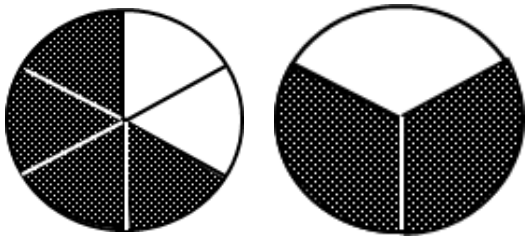


$\frac{0}{6}$ $\frac{1}{6}$ $\frac{2}{6}$ $\frac{3}{6}$ $\frac{4}{6}$ $\frac{5}{6}$ $\frac{6}{6} = 1$

½ is at the mid-point – den. is exactly half num (3/6).

B.) Which fraction is equivalent to ½? $\frac{3}{6}$

2. Write the fractions on the line provided.



$\frac{4}{6}$ $\frac{2}{3}$

A.) Why are the fractions equal? $\frac{4}{6} = \frac{2}{3}$

Occupy the same area.

Repeat each day, until students recognize 1/2.

B.) Ring all fractions equal to ½.

$\frac{7}{14}$ $\frac{2}{3}$ $\frac{9}{18}$ $\frac{10}{20}$ $\frac{9}{9}$

$\frac{4}{8}$ $\frac{5}{10}$ $\frac{9}{16}$ $\frac{50}{100}$ $\frac{8}{16}$

---

3. **Treat the Bar Diagram like a Number line.**
Write the fractions on the line provided.

$\frac{0}{2}$ $\frac{1}{2}$ Since 1 = 2/2, the N.L. is correct! $\frac{2}{2}$



$\frac{0}{4}$ $\frac{1}{4}$ $\frac{2}{4}$ $\frac{3}{4}$ $\frac{4}{4}$

"Count the EQUAL spaces – Label the Lines!"

A.) Write two fractions that are equal.

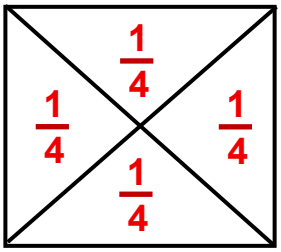
$\frac{0}{2} = \frac{0}{4}$ & $\frac{2}{4} = \frac{1}{2}$ & $\frac{2}{2} = \frac{4}{4} = 1$

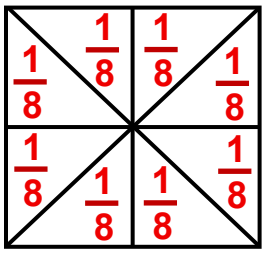
B.) Why does $^1/_2$ equal $^2/_4$ on the fraction bar?

Occupy the same area for each fraction.
Both Fractions are at the midpoint of fraction bar.

Shade equal areas so 1/2 = 2/4, visually, the fractions MUST be equal.

4. Write the fractions inside the sections.





Equal areas – equate the fractions. Shade to show students. Write equality as in A.) below.

A.) Write three fractions that are equal.

$\frac{1}{4} = \frac{2}{8}$ & $\frac{2}{4} = \frac{4}{8}$ & $\frac{3}{4} = \frac{6}{8}$

$\frac{4}{4} = \frac{8}{8} = 1$

B.) Based on the denominator, why is $\frac{3}{8} < \frac{3}{4}$?

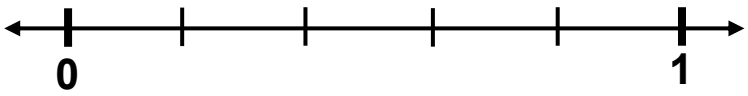
Numerators the same. Smallest den. is larger piece/fraction. Plus, larger shaded area.

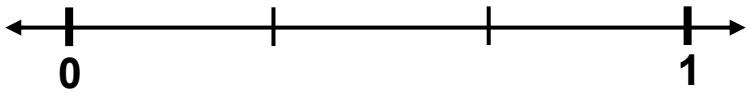
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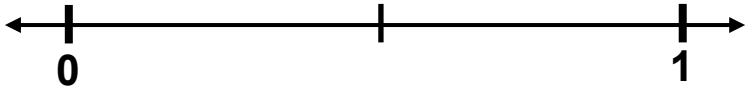
Equivalent Fractions – Area and Number Lines – V3

Directions: Complete each problem as instructed and answer the questions.

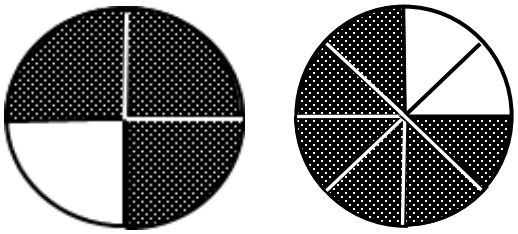
1. Write the fractions on the line provided.







2. Write the fractions on the line provided.



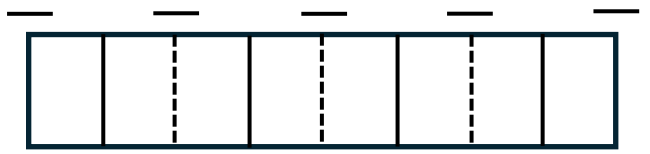
A.) Why are the fractions equal?

B.) Ring all fractions equal to ½.

$\frac{8}{14}$ $\frac{2}{3}$ $\frac{9}{18}$ $\frac{25}{50}$ $\frac{9}{9}$

$\frac{4}{8}$ $\frac{5}{10}$ $\frac{15}{30}$ $\frac{50}{100}$ $\frac{10}{16}$

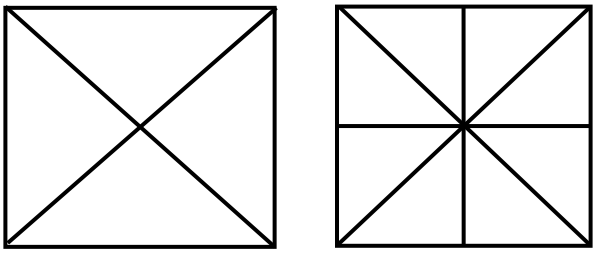
3. Write the fractions on the line provided.



A.) Write three fractions that are equal.

B.) Why does equal $^{2}/_{4}$ and $^{4}/_{8}$ on the fraction bar?

4. Write the fractions inside the sections.



A.) Write <u>three</u> fractions that are equal.

B.) Based on the denominator, why is $\frac{3}{8} < \frac{3}{4}$?

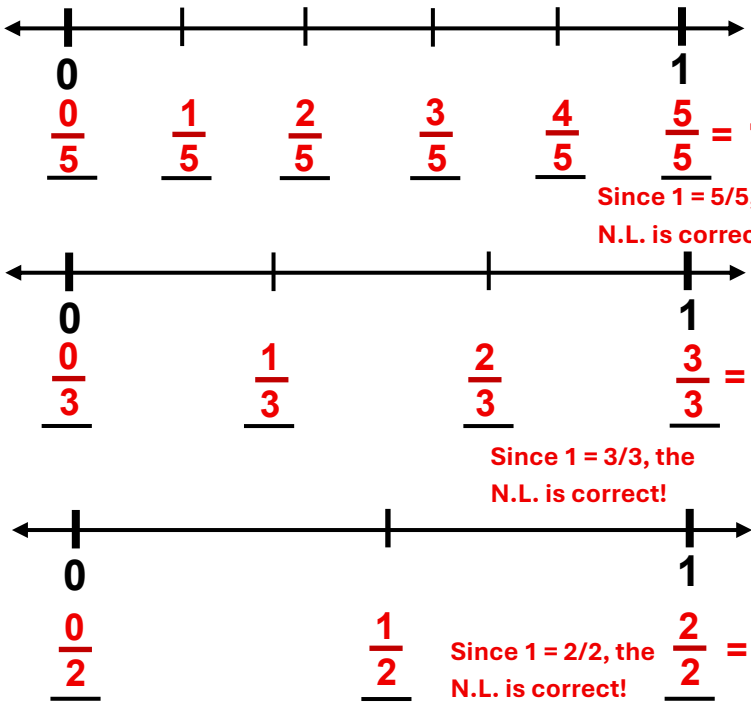
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Equivalent Fractions – Area and Number Lines – V3

Directions: Complete each problem as instructed and answer the questions.

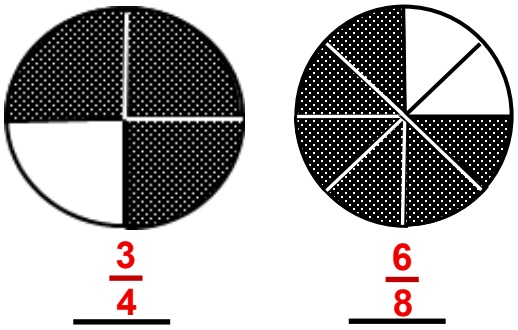
SOLUTIONS

1. ***"Count the EQUAL spaces – Label the Lines!"***
Write the fractions on the line provided.



½ is at the mid-point – den. is exactly half num (1/2).

2. Write the fractions on the line provided.



3/4 6/8

A.) Why are the fractions equal? 3/4 = 6/8

Occupy the same area.

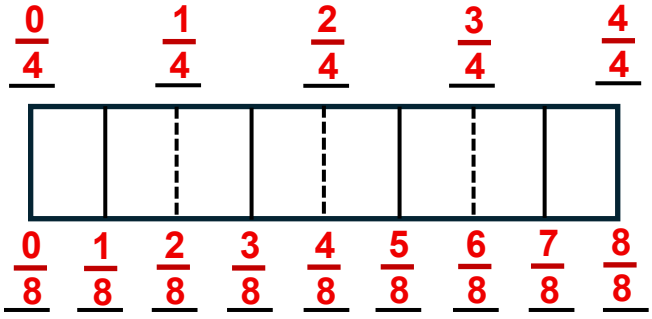
Repeat each day, until students recognize 1/2.

B.) Ring all fractions equal to ½.

8/14 2/3 9/18 25/50 9/9

4/8 5/10 15/30 50/100 10/16

3. **Treat the Bar Diagram like a Number line.**
Write the fractions on the line provided.



"Count the EQUAL spaces – Label the Lines!"

A.) Write three fractions that are equal.

0/8 = 0/4 & 2/8 = 1/4 & 4/8 = 2/4

6/8 = 3/4 & 8/8 = 4/4

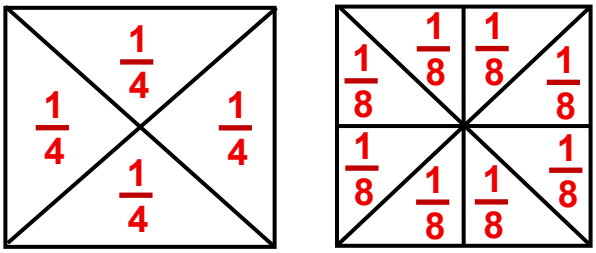
B.) Why does equal $^{2}/_{4}$ and $^{4}/_{8}$ on the fraction bar?

Occupy the same area for each fraction.

Both Fractions are at the midpoint of fraction bar.

Shade equal areas so 4/8 = 2/4, visually, the fractions MUST be equal.

4. Write the fractions inside the sections.



Equal areas – equate the fractions. Shade to show students. Write equality as in A.) below.

A.) Write three fractions that are equal.

1/4 = 2/8 & 2/4 = 4/8 & 3/4 = 6/8

4/4 = 8/8 = 1

B.) Based on the denominator, why is 3/8 < 3/4?

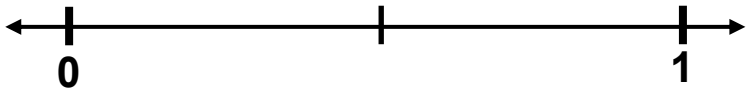
Numerators the same. Smallest den. is larger piece/fraction. Plus, larger shaded area.

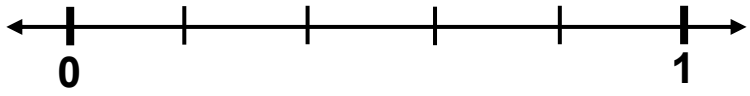
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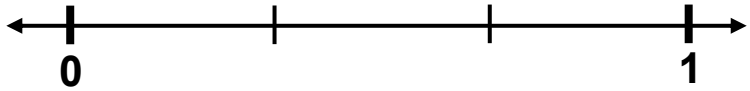
Equivalent Fractions – Area and Number Lines – V4

Directions: Complete each problem as instructed and answer the questions.

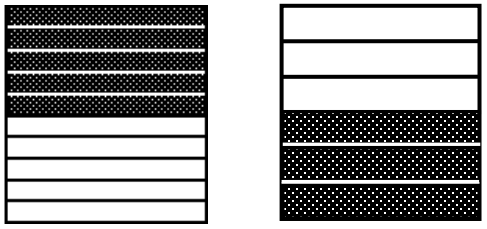
1. Write the fractions on the line provided.







2. Write the fractions on the line provided.



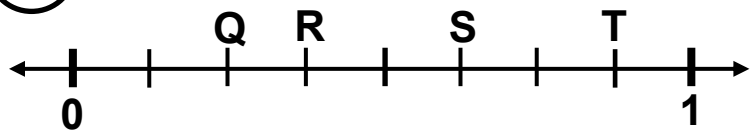
A.) Why are the fractions equal?

B.) Ring all fractions equal to **1 whole**.

$\frac{8}{14}$ $\frac{2}{2}$ $\frac{9}{9}$ $\frac{25}{50}$ $\frac{9}{9}$

$\frac{2}{8}$ $\frac{10}{10}$ $\frac{17}{30}$ $\frac{5}{1}$ $\frac{16}{16}$

3. Write the fractions on the line provided.

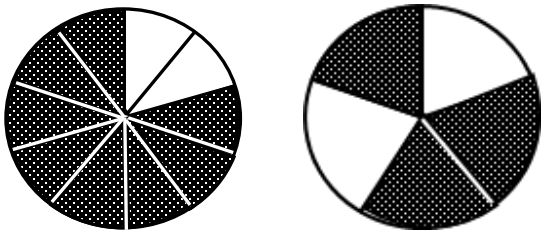


A.) Write the fractions located at Pt **R** and **T**.

B.) What fraction is at the midpoint?

C.) What does 8 represent in the fraction $^{7}/_{8}$?

4. Write the fractions under the pictures.



A.) Write the inequality between the two fractions using <, >, or =) .

B.) Based on the pictures above, why is $\frac{8}{10} > \frac{3}{5}$?

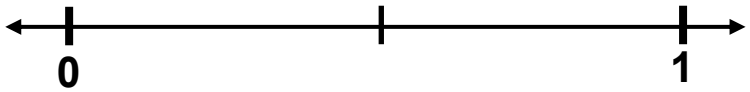
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Equivalent Fractions – Area and Number Lines – V4

Directions: Complete each problem as instructed and answer the questions.

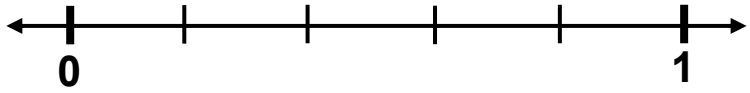
SOLUTIONS

1. ***"Count the EQUAL spaces – Label the Lines!"***
Write the fractions on the line provided.



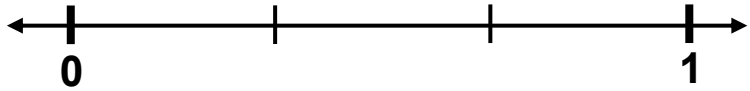
$\frac{0}{2}$ $\frac{1}{2}$ Since 1 = 2/2, the N.L. is correct! $\frac{2}{2} = 1$

½ is at the mid-point – den. is exactly half num (1/2).



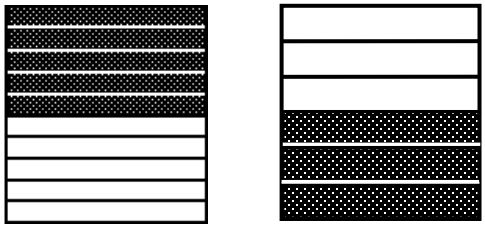
$\frac{0}{5}$ $\frac{1}{5}$ $\frac{2}{5}$ $\frac{3}{5}$ $\frac{4}{5}$ $\frac{5}{5} = 1$

Since 1 = 5/5, the N.L. is correct!



$\frac{0}{3}$ $\frac{1}{3}$ $\frac{2}{3}$ $\frac{3}{3} = 1$

2. Write the fractions on the line provided.



$\frac{5}{10}$ $\frac{3}{6}$

A.) Why are the fractions equal? $\frac{5}{10} = \frac{3}{6}$

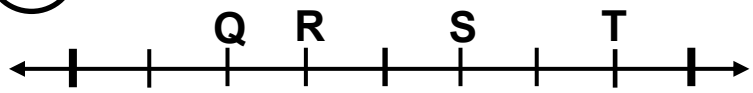
Occupy the same area.

Show students that 3/3 = 4/4 = 5/5 by shading

B.) Ring all fractions equal to **1 whole**.

$\frac{8}{14}$	$\frac{2}{2}$	$\frac{9}{9}$	$\frac{25}{50}$	$\frac{9}{9}$
$\frac{2}{8}$	$\frac{10}{10}$	$\frac{17}{30}$	$\frac{5}{1}$	$\frac{16}{16}$

3. ***"Count the EQUAL spaces – Label the Lines!"***
Write the fractions on the line provided.



$\frac{0}{8}$ $\frac{1}{8}$ $\frac{2}{8}$ $\frac{3}{8}$ $\frac{4}{8}$ $\frac{5}{8}$ $\frac{6}{8}$ $\frac{7}{8}$ $\frac{8}{8}$

A.) Write the fractions located at Pt **R** and **T**.

$\frac{3}{8}$ & $\frac{7}{8}$

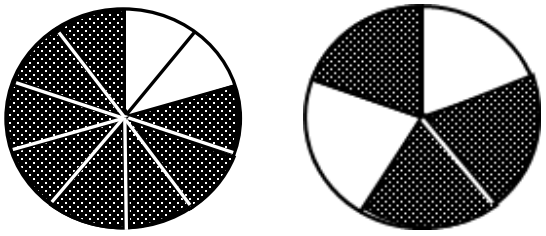
B.) What fraction is at the midpoint?

$\frac{4}{8}$

C.) What does 8 represent in the fraction $^{7}/_{8}$?

8 Total EQUAL parts – Stress EQUAL!!!

4. Write the fractions under the pictures.



$\frac{8}{10}$ $\frac{3}{5}$

A.) Write the inequality between the two fractions using <, >, or =) . $\frac{8}{10} > \frac{3}{5}$

B.) Based on the pictures above, why is $\frac{8}{10} > \frac{3}{5}$?

Larger fraction is more shaded – larger area.

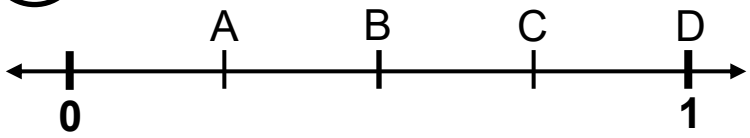
8/10 is also closer to 1 whole.

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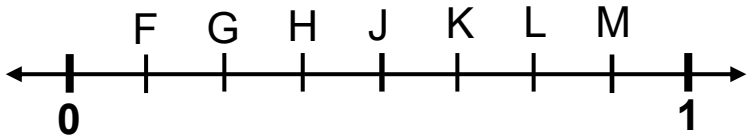
Equivalent Fractions – Area and Number Lines – V5

Directions: Complete each problem as instructed and answer the questions.

1. Write the fractions on the line provided.



_____ _____ _____ _____ _____



_____ _____ _____ _____ _____ _____ _____ _____ _____

1.) Which fraction on the lower fractional number line is equivalent to the fraction located at point **C**? _____

2.) Which fractions are equal to ½? _____

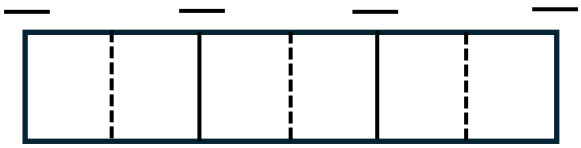
3.) What is the reason the fractions at Point **A** and Point **G** are equal? _____

4.) Write the fractional equivalency of Point **C** and Point **L**? _____

5.) What is the relationship between the numerator and denominator at Points **B** and **J**? _____

---

2. Write the fractions on the line provided.



_____ _____ _____ _____ _____ _____ _____

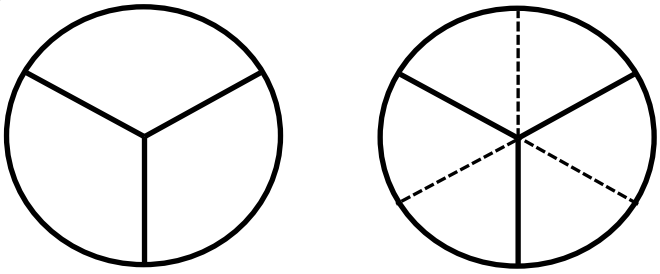
A.) Write two fractions that are equal.

_____

B.) Why does $^{1}/_{3}$ equal $^{2}/_{6}$ on the fraction bar?

_____

3. Write the fractions inside the sections.



A.) Write two fractions that are equal.

_____

B.) What does 6 represent in the fraction $^{5}/_{6}$?

_____

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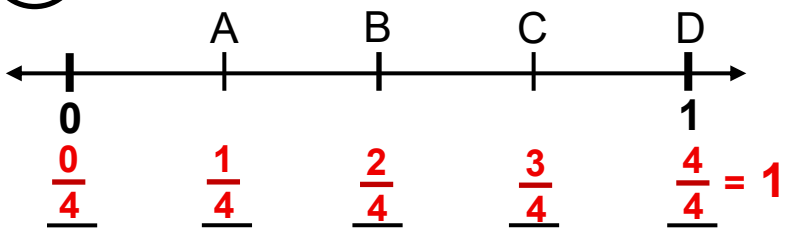
Equivalent Fractions – Area and Number Lines – V5

Directions: Complete each problem as instructed and answer the questions.

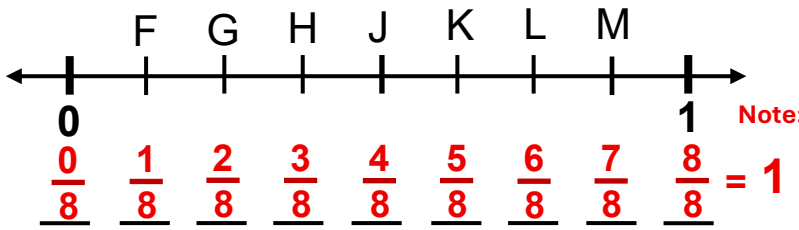
SOLUTIONS

1. ***"Count the EQUAL spaces – Label the Lines!"***

Write the fractions on the line provided.



Stress fraction equals ½ - See Question #5.



Stress the math term "midpoint."

1.) Which fraction on the lower fractional number line is equivalent to the fraction located at point **C**? 6/8

2.) Which fractions are equal to ½? 2/4 and 4/8

3.) What is the reason the fractions at Point **A** and Point **G** are equal? The two fractions occupy the same point on each fractional number line.

4.) Write the fractional equivalency of Point **C** and Point **L**? 3/4 = 6/8

Note: 8/8 = 1. We know the N.L. is correct!!!

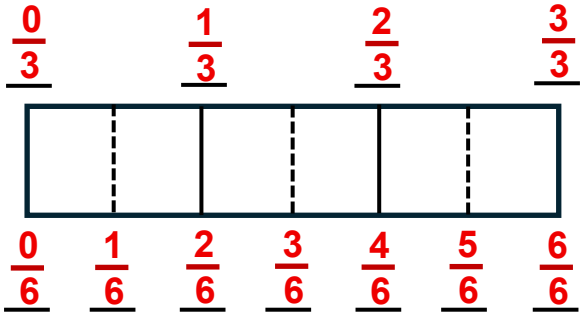
5.) What is the relationship between the numerator and denominator at Points **B** and **J**?

The numerator is exactly HALF of the the denominator (2 and 4 --- 4 and 8)

---

2. Treat the Bar Diagram like a Number line.

Write the fractions on the line provided.



"Count the EQUAL spaces – Label the Lines!"

A.) Write two fractions that are equal.

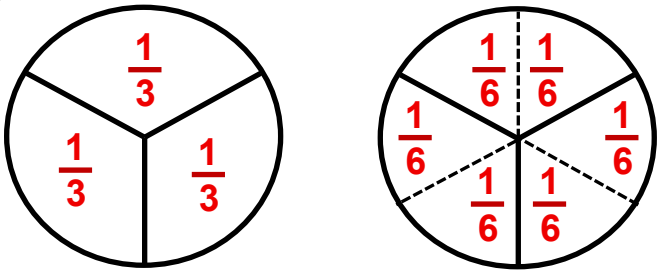
1/3 = 2/6 & 2/3 = 4/6 & 3/3 = 6/6 = 1

B.) Why does $^1/_3$ equal $^2/_6$ on the fraction bar?

Occupy the same area for each fraction.

Shade equal areas so 1/3 = 2/6, visually, the fractions MUST be equal.

3. Write the fractions inside the sections.



Equal areas – equate the fractions. Shade to show students. Write equality as in 1.) below.

A.) Write two fractions that are equal.

1/3 = 2/6 & 2/3 = 4/6 & 3/3 = 6/6 = 1

B.) What does 6 represent in the fraction $^5/_6$?

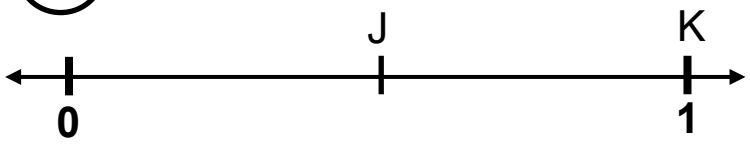
6 Total EQUAL parts – Stress EQUAL!!!

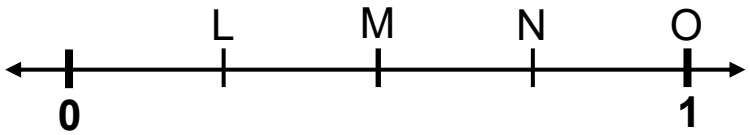
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Equivalent Fractions – Area and Number Lines – V6

Directions: Complete each problem as instructed and answer the questions.

1. Write the fractions on the line provided.





1.) Which fraction on the lower fractional number line is equivalent to the fraction located at point **O**? _____

2.) Which fraction is equal to ½? _____

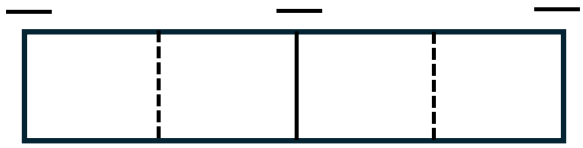
3.) What is the reason the fractions at Point **K** and Point **O** are equal? _____

4.) Write the fractional equivalency of Point **J** and Point **M**? _____

5.) What is the relationship between the numerator and denominator at Points **J** and **M**? _____

---

2. Write the fractions on the line provided.



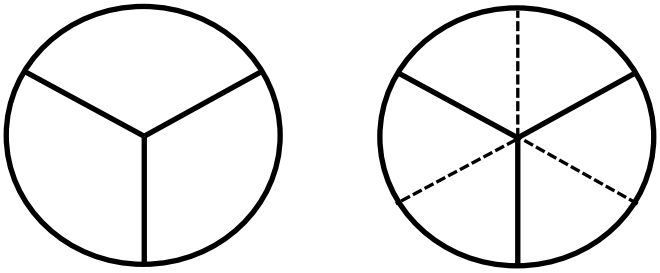
A.) Write two fractions that are equal.

_____

B.) Why does $^{1}/_{2}$ equal $^{2}/_{4}$ on the fraction bar?

_____

3. Write the fractions inside the sections.



A.) View the denominators, why is $\frac{2}{3} > \frac{2}{6}$?

_____

B.) What does 3 represent in the fraction $^{1}/_{3}$?

_____

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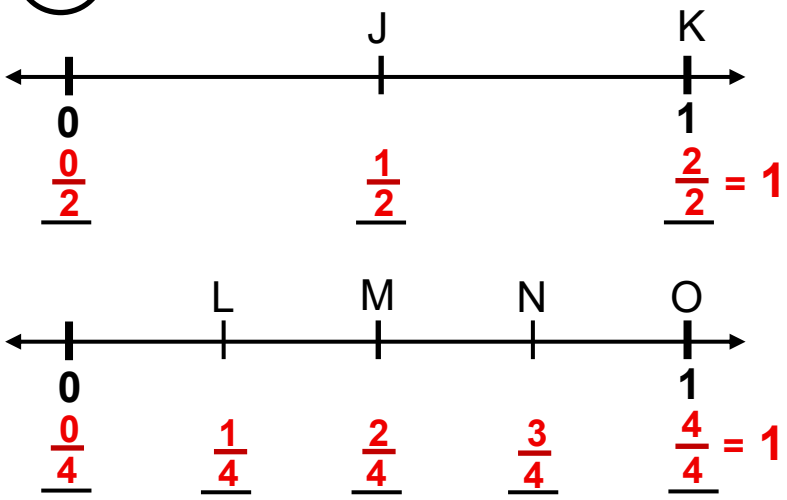
Equivalent Fractions – Area and Number Lines – V6

Directions: Complete each problem as instructed and answer the questions.

SOLUTIONS

1. *"Count the EQUAL spaces – Label the Lines!"*

Write the fractions on the line provided.



Stress the math term "midpoint."

Half is the midpoint between two whole numbers (0 & 1)

1.) Which fraction on the lower fractional number line is equivalent to the fraction located at point **O**? 4/4

2.) Which fraction is equal to ½? 2/4

3.) What is the reason the fractions at Point **K** and Point **O** are equal? The two fractions occupy the same point on each fractional number line.

4.) Write the fractional equivalency of Point **J** and Point **M**? 1/2 = 2/4

Note: 4/4 = 1. We know the N.L. is correct!!!

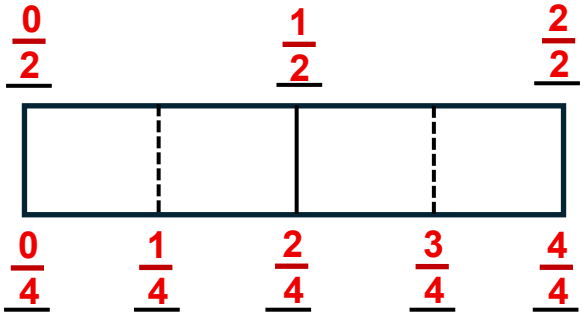
5.) What is the relationship between the numerator and denominator at Points **J** and **M**?

The numerator is exactly HALF of the the denominator (2 and 4 --- 1 and 2)

---

2. Treat the Bar Diagram like a Number line.

Write the fractions on the line provided.



"Count the EQUAL spaces – Label the Lines!"

A.) Write two fractions that are equal.

0/2 = 0/4 & 1/2 = 2/4 & 2/2 = 4/4 = 1

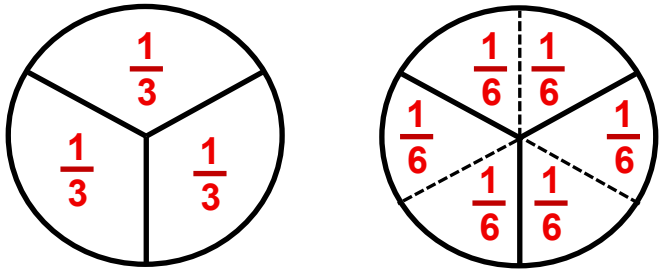
Show students 2/2 = 4/4 by shading fraction.

B.) Why does $^1/_2$ equal $^2/_4$ on the fraction bar?

Occupy the same area for each fraction.

Shade equal areas so 1/2 = 2/4, visually, the fractions MUST be equal.

3. Write the fractions inside the sections.



Work with similar problems as A.) until students understand!

A.) View the denominators, why is 2/3 > 2/6 ?

Numerators the same! Then, smallest denominator is the bigger fraction (Shade).

B.) What does 3 represent in the fraction $^1/_3$?

3 Total EQUAL parts – Stress EQUAL!!!

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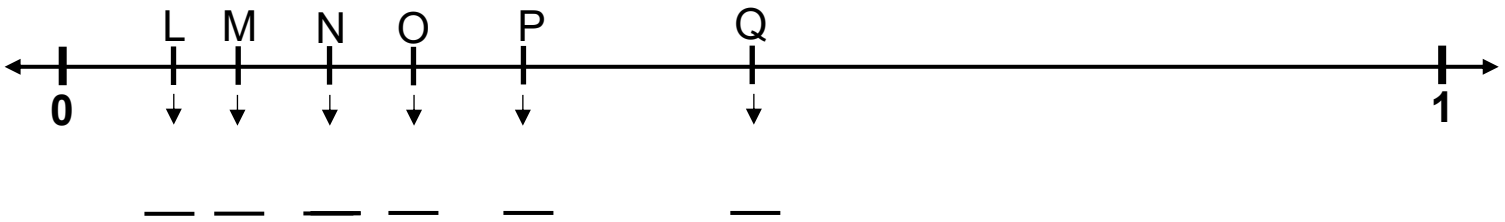
Equivalent Fractions – Area and Number Lines – V7

Directions: Complete each problem as instructed and answer the questions.

1. Use your knowledge of fractions to place the fractions provided in the FRACTION BOX in their correct position on the fractional number line.

Hint: The numerators are all the same – 1.

Fraction Box: $\frac{1}{2}$ $\frac{1}{3}$ $\frac{1}{4}$ $\frac{1}{5}$ $\frac{1}{8}$ $\frac{1}{10}$



Answer the questions on the fractional number line above.

1.) Why is Point L the smallest fraction on the number line? _____

_____

2.) Put the fractions in order from greatest to least. ___ > ___ > ___ > ___ > ___ > ___

---

2. Compare fractions by placing a < , > , = in the circle between the two fractions.

$\frac{2}{3} \bigcirc \frac{2}{6}$ $\frac{1}{2} \bigcirc \frac{5}{10}$ $\frac{9}{10} \bigcirc \frac{1}{2}$

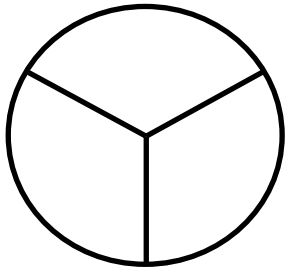
$\frac{1}{3} \bigcirc \frac{1}{4}$ $\frac{2}{9} \bigcirc \frac{2}{6}$ $\frac{4}{5} \bigcirc \frac{1}{10}$

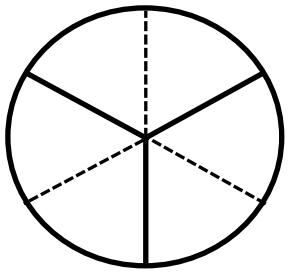
$\frac{2}{4} \bigcirc \frac{7}{14}$ $\frac{3}{3} \bigcirc \frac{8}{8}$ $\frac{5}{9} \bigcirc \frac{5}{10}$

$\frac{1}{3} \bigcirc \frac{4}{4}$ $\frac{2}{6} \bigcirc \frac{2}{4}$ $\frac{2}{3} \bigcirc \frac{4}{6}$

$\frac{2}{10} \bigcirc \frac{4}{8}$ $\frac{2}{2} \bigcirc \frac{7}{7}$ $\frac{6}{12} \bigcirc \frac{7}{14}$

3. Write the fractions inside the sections.





A.) Why is $\frac{3}{6} > \frac{1}{3}$?

Hint: *What does $^{3}/_{6}$ equal?*

_____

_____

B.) What does 3 represent in the fraction $^{1}/_{3}$?

_____

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Equivalent Fractions – Area and Number Lines – V7

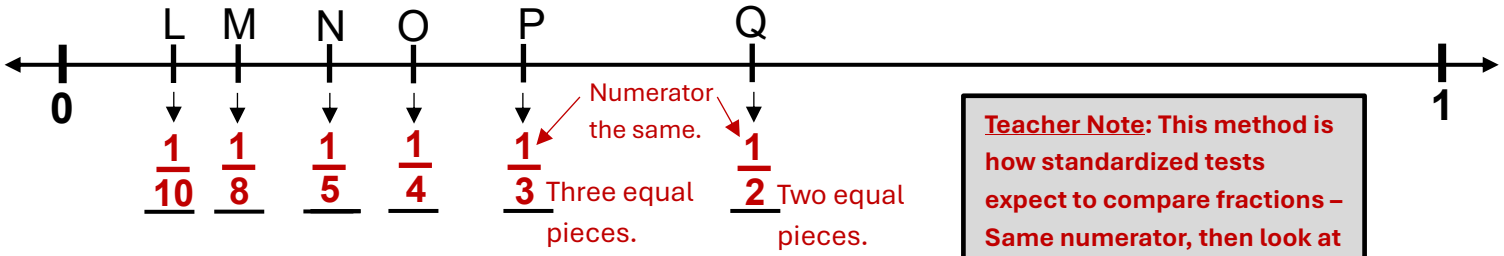
Directions: Complete each problem as instructed and answer the questions.

SOLUTIONS

1. Use your knowledge of fractions to place the fractions provided in the FRACTION BOX in their correct position on the fractional number line.

Hint: The numerators are all the same – 1.

Fraction Box: $\frac{1}{2}$ $\frac{1}{3}$ $\frac{1}{4}$ $\frac{1}{5}$ $\frac{1}{8}$ $\frac{1}{10}$



Teacher Note: This method is how standardized tests expect to compare fractions – Same numerator, then look at denominators.

Answer the questions on the fractional number line above.

1.) Why is Point L the smallest fraction on the number line? The denominator is 10. It is the smallest fraction.

It is the smallest fraction since the numerators are the same – smallest pieces.

2.) Put the fractions in order from greatest to least. $\frac{1}{2} > \frac{1}{3} > \frac{1}{4} > \frac{1}{5} > \frac{1}{8} > \frac{1}{10}$

---

2. Compare fractions by placing a < , > , = in the circle between the two fractions.

$\frac{2}{3} > \frac{2}{6}$ $\quad \frac{1}{2} = \frac{5}{10}$ $\quad \frac{9}{10} > \frac{1}{2}$

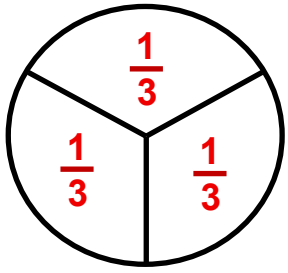
$\frac{1}{3} > \frac{1}{4}$ $\quad \frac{2}{9} < \frac{2}{6}$ $\quad \frac{4}{5} > \frac{1}{10}$

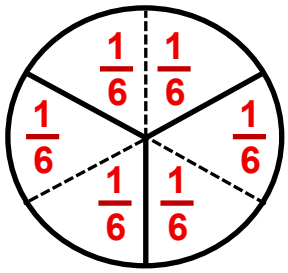
$\frac{2}{4} = \frac{7}{14}$ $\quad \frac{3}{3} = \frac{8}{8}$ $\quad \frac{5}{9} > \frac{5}{10}$

$\frac{1}{3} < \frac{4}{4}$ $\quad \frac{2}{6} < \frac{2}{4}$ $\quad \frac{2}{3} = \frac{4}{6}$ *Think*

$\frac{2}{10} < \frac{4}{8}$ $\quad \frac{2}{2} = \frac{7}{7}$ $\quad \frac{6}{12} = \frac{7}{14}$

3. Write the fractions inside the sections.





A.) Why is $\frac{3}{6} > \frac{1}{3}$? ***Hint:*** *What does $^3/_6$ equal?*

$^3/_6$ is equal to ½. ½ is bigger than $^1/_3$.

Numerators the same... $^1/_2$ and $^1/_3$.

B.) What does 3 represent in the fraction $^1/_3$?

3 Total EQUAL parts – Stress EQUAL!!!

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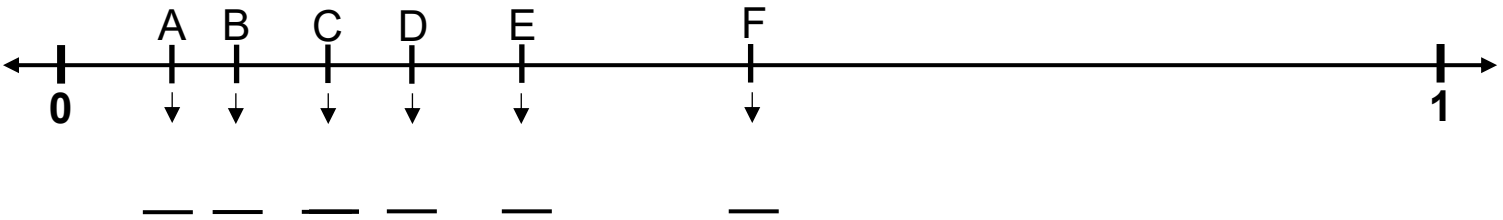
Equivalent Fractions – Area and Number Lines – V8

Directions: Complete each problem as instructed and answer the questions.

1. Use your knowledge of fractions to place the fractions provided in the FRACTION BOX in their correct position on the fractional number line.

Hint: The numerators are all the same – 1.

Fraction Box: $\frac{1}{5}$ $\frac{1}{3}$ $\frac{1}{10}$ $\frac{1}{8}$ $\frac{1}{4}$ $\frac{1}{2}$



Answer the questions on the fractional number line above.

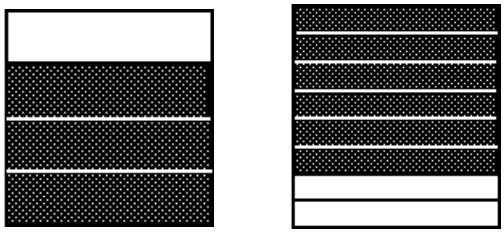
1.) Why is Point F the largest fraction on the number line?

2.) Put the fractions in order from least to greatest. ___ < ___ < ___ < ___ < ___ < ___

2. Compare fractions by placing a < , > , = in the circle between the two fractions.

$\frac{1}{2} \bigcirc \frac{5}{10}$	$\frac{5}{9} \bigcirc \frac{5}{10}$	$\frac{6}{6} \bigcirc \frac{2}{2}$
$\frac{1}{3} \bigcirc \frac{1}{4}$	$\frac{2}{9} \bigcirc \frac{2}{6}$	$\frac{4}{5} \bigcirc \frac{1}{10}$
$\frac{2}{4} \bigcirc \frac{9}{18}$	$\frac{9}{10} \bigcirc \frac{50}{100}$	$\frac{2}{3} \bigcirc \frac{2}{6}$
$\frac{1}{8} \bigcirc \frac{9}{9}$	$\frac{2}{2} \bigcirc \frac{7}{7}$	$\frac{2}{3} \bigcirc \frac{4}{6}$
$\frac{1}{4} \bigcirc \frac{2}{8}$	$\frac{6}{12} \bigcirc \frac{7}{14}$	$\frac{2}{6} \bigcirc \frac{2}{4}$

3. Write the fractions for each figure.



___ ___

A.) Why is $\frac{3}{4} = \frac{6}{8}$?

B.) What does 8 represent in the fraction $^{6}/_{8}$?

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Equivalent Fractions – Area and Number Lines – V8

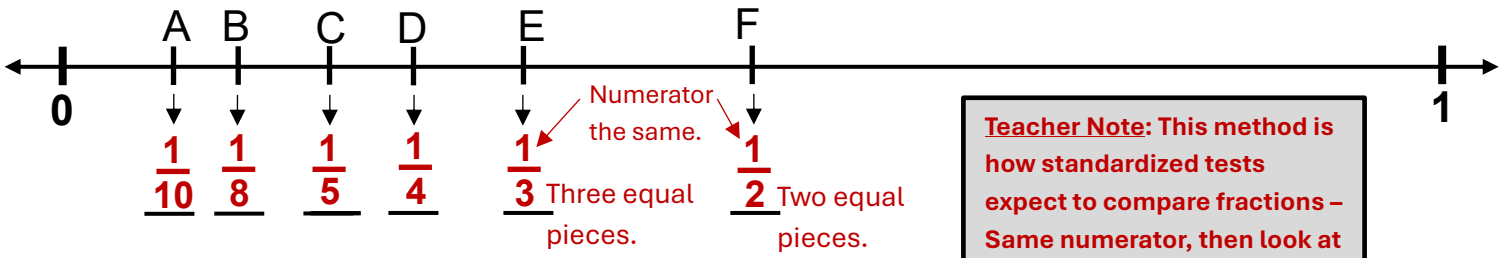
Directions: Complete each problem as instructed and answer the questions.

SOLUTIONS

1. Use your knowledge of fractions to place the fractions provided in the FRACTION BOX in their correct position on the fractional number line.

Hint: The numerators are all the same – 1.

Fraction Box: $\frac{1}{5}$ $\frac{1}{3}$ $\frac{1}{10}$ $\frac{1}{8}$ $\frac{1}{4}$ $\frac{1}{2}$



Teacher Note: This method is how standardized tests expect to compare fractions – Same numerator, then look at denominators.

Answer the questions on the fractional number line above.

1.) Why is Point F the largest fraction on the number line? The denominator is 2. It is the largest fraction.

It is the largest fraction since the numerators are the same – largest pieces. Largest fraction since largest pieces.

2.) Put the fractions in order from least to greatest. $\frac{1}{10} < \frac{1}{8} < \frac{1}{5} < \frac{1}{4} < \frac{1}{3} < \frac{1}{2}$

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2. Compare fractions by placing a < , > , = in the circle between the two fractions.

$\frac{1}{2} = \frac{5}{10}$ $\quad \frac{5}{9} > \frac{5}{10}$ $\quad \frac{6}{6} = \frac{2}{2}$

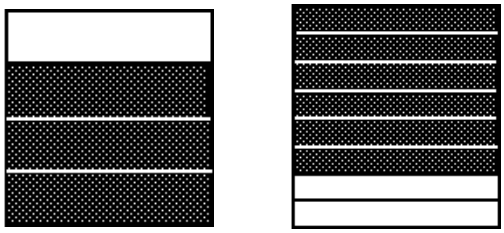
$\frac{1}{3} > \frac{1}{4}$ $\quad \frac{2}{9} < \frac{2}{6}$ $\quad \frac{4}{5} > \frac{1}{10}$

$\frac{2}{4} = \frac{9}{18}$ $\quad \frac{9}{10} > \frac{50}{100}$ $\quad \frac{2}{3} > \frac{2}{6}$

$\frac{1}{8} < \frac{9}{9}$ $\quad \frac{2}{2} = \frac{7}{7}$ $\quad \frac{2}{3} = \frac{4}{6}$

$\frac{1}{4} = \frac{2}{8}$ $\quad \frac{6}{12} = \frac{7}{14}$ $\quad \frac{2}{6} < \frac{2}{4}$

3. Write the fractions for each figure.



$\frac{3}{4}$ $\qquad$ $\frac{6}{8}$

A.) Why is $\frac{3}{4} = \frac{6}{8}$?

Both fractions occupy the same area.

Also, multiply ¾ by $^2/_2$ (i.e., 1) = $^6/_8$ (Identity Princ. of x)

B.) What does 8 represent in the fraction $^6/_8$?

8 Total EQUAL parts – Stress EQUAL!!!

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