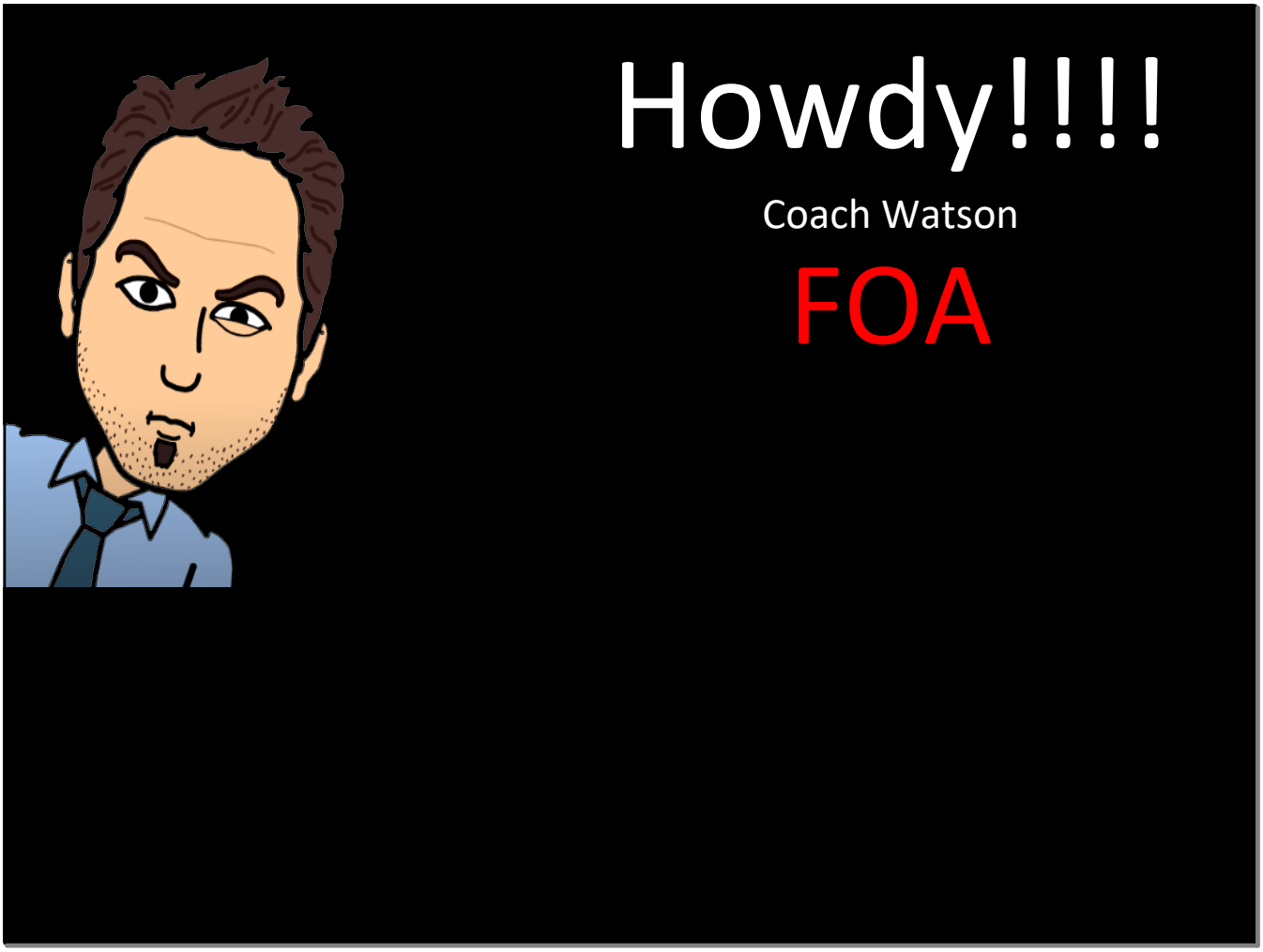
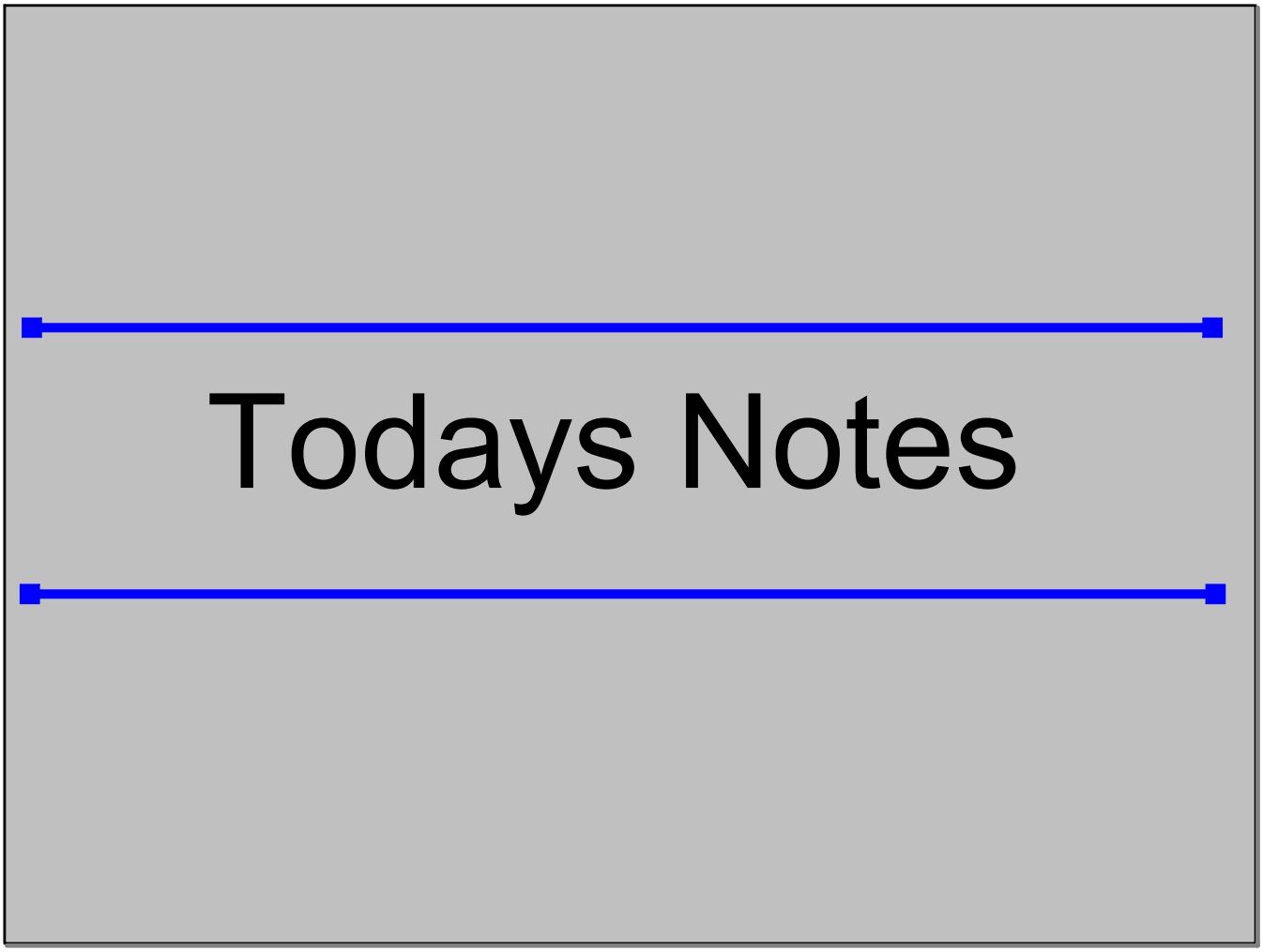


Jan 5-3:51 PM



Jul 30-4:21 PM

Day 4: Fractions on a Number Line

To understand how fraction works on a number line, we are going to create three different number lines:

1st Number Line: _____ (Make your line 16 cm long)

1st Color: Divide your number line into two equal parts. What fraction is this? _____

2nd Color: Divide your two halves in half again. What fraction is this? _____

3rd Color: Divide your four halves in half again. What fraction is this? _____

2nd Number Line: _____ (Make your line 12 cm long)

1st Color: Divide your number line into three equal parts. What fraction is this? _____

2nd Color: Divide your three pieces in half. What fraction is this? _____

3rd Color: Divide your three pieces in half again. What fraction is this? _____

3rd Number Line: _____ (Make your line 15 cm long)

1st Color: Divide your number line into five equal parts. What fraction is this? _____

2nd Color: Divide your five pieces in half. What fraction is this? _____

Foundations of Algebra Unit I: Number Sense & Quantity Notes

Analyze: Answer the following questions below:

1. **Unit Fractions** are fractions that have a numerator of 1 and a denominator that is a positive integer. List your unit fractions from the previous page in descending (biggest to smallest) order.

whole natural

Big $1, \frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \frac{1}{5}, \frac{1}{6}, \frac{1}{8}, \frac{1}{10}, \frac{1}{12}$ Small

2. As the denominator gets bigger, the fraction is getting smaller.

3. What does the denominator of the unit fraction tell you?

# of pieces/sections what you divide it by

4. Create another number line that is 10 cm long. Place your unit fractions on the number line.

5. Name the following fractions that are equivalent to the following unit fractions:

a. $\frac{1}{2}$ $\frac{3}{6}$ $\frac{2}{4}$ $\frac{4}{8}$ $\frac{5}{10}$ $\frac{6}{12}$

b. $\frac{1}{3}$ $\frac{3}{9}$ $\frac{2}{6}$ $\frac{5}{15}$ $\frac{8}{24}$ $\frac{4}{12}$

c. $\frac{1}{4}$ $\frac{2}{8}$ $\frac{3}{12}$ $\frac{4}{16}$ $\frac{5}{20}$

d. $\frac{1}{5}$ $\frac{2}{10}$ $\frac{3}{15}$ $\frac{4}{20}$

e. $\frac{1}{6}$ $\frac{2}{12}$ $\frac{3}{18}$ $\frac{4}{24}$

f. $\frac{2}{3}$ $\frac{4}{6}$ $\frac{6}{9}$ $\frac{8}{12}$

g. $\frac{3}{4}$ $\frac{6}{8}$ $\frac{9}{12}$ $\frac{12}{16}$

h. 1 $\frac{1}{1}$ $\frac{2}{2}$ $\frac{3}{3}$ $\frac{17}{17}$

6. What do you notice about the numerator and denominator of the equivalent fractions?

Greatest Common Factor

7. Create two additional equivalent fractions for the following:

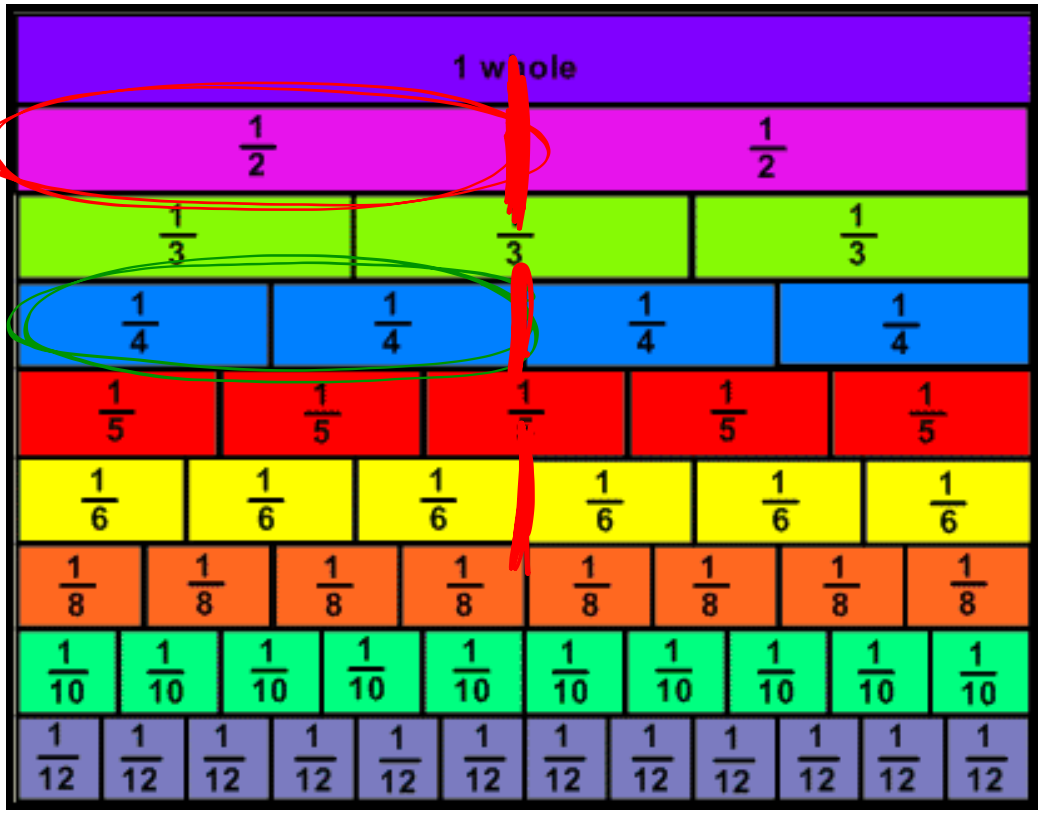
a. $\frac{5}{6}$ $\frac{10}{12}$ $\frac{20}{24}$

b. $\frac{2}{5}$ $\frac{4}{10}$ $\frac{6}{15}$

c. $\frac{3}{8}$ $\frac{6}{16}$ $\frac{9}{24}$

3

Fractions



Aug 1-1:11 PM

Day 5: Simplifying Fractions

You know how to create equivalent fractions already. You understand that if two fractions are equivalent, they share a common factor. A fraction is in simplest terms if all common factors have been removed from the numerator and denominator. Can you work backwards to put a fraction in simplest form?

Method 1: Prime Factorization

$\frac{15}{20}$

Method 2: GCF

$\frac{15}{20} \div 5 = \frac{3}{4}$

Practice: Simplify each fraction using the method of your choice.

a. $\frac{24}{28} \div 4 = \frac{6}{7}$

b. $\frac{33}{77} = \frac{3}{7}$

c. $\frac{45}{56}$

d. $\frac{8}{15}$

Improper Fractions and Mixed Numbers

An **improper fraction** is a fraction where the numerator is bigger than the denominator. A **mixed number** is a fraction with a whole number part.

Mixed Number	Fraction Sentence	Improper Fraction
$3\frac{1}{8}$	$= 1+1+1+\frac{1}{8}$	
	$= \frac{8}{8}+\frac{8}{8}+\frac{8}{8}+\frac{1}{8}$	$= \frac{25}{8}$

Mixed Number	Fraction Sentence	Improper Fraction
$2\frac{1}{4}$	$\frac{4}{4}+\frac{4}{4}+\frac{1}{4}$	$\frac{9}{4}$
$3\frac{2}{5}$	$\frac{5}{5}+\frac{5}{5}+\frac{5}{5}+\frac{2}{5}$	$\frac{17}{5}$
$2\frac{2}{3}$	$\frac{3}{3}+\frac{3}{3}+\frac{2}{3}$	$\frac{8}{3}$
$3\frac{5}{8}$	$\frac{8}{8}+\frac{8}{8}+\frac{8}{8}+\frac{5}{8}$	$\frac{29}{8}$
$4\frac{3}{7}$	$\frac{7}{7}+\frac{7}{7}+\frac{7}{7}+\frac{7}{7}+\frac{3}{7}$	$\frac{31}{7}$
$3\frac{1}{6}$	$\frac{6}{6}+\frac{6}{6}+\frac{6}{6}+\frac{1}{6}$	$\frac{19}{6}$
$5\frac{1}{2}$	$\frac{2}{2}+\frac{2}{2}+\frac{2}{2}+\frac{2}{2}+\frac{2}{2}+\frac{1}{2}$	$\frac{11}{2}$

4

Additional Practice

Jul 30-8:11 PM

Foundations of Algebra Unit 1: Number Sense & Quantity Practice

Day 3: Fractions on a Number Line **Name:** _____

Practice Assignment **0 25 50 75 100**

1. Divide & label the number line into sixths. Plot $\frac{1}{3}$.

2. Divide & label the number line into eighths. Plot $\frac{3}{4}$.

2. Order the fractions from least to greatest. Show or explain your reasoning.

a. $\frac{5}{11}, \frac{5}{6}, \frac{5}{13}, \frac{5}{3}, \frac{5}{17}, \frac{5}{8}$

b. $\frac{7}{5}, \frac{7}{15}, \frac{7}{4}, \frac{7}{22}, \frac{7}{9}, \frac{7}{12}$

3. Create a rectangle that represents the following fractions and their colors:

a. ¼ yellow & ¾ red

b. ½ red, ¼ blue, & ¼ yellow

c. $\frac{5}{8}$ green, $\frac{1}{4}$ red, & $\frac{1}{8}$ blue

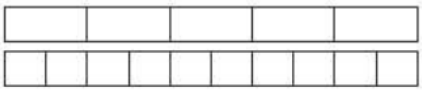
d. $\frac{1}{3}$ red, $\frac{1}{6}$ blue, $\frac{1}{6}$ green, & $\frac{1}{3}$ yellow

Foundations of Algebra Unit 1: Number Sense & Quantity Practice

4. Determine which fraction is equivalent to the following by shading in the appropriate boxes.

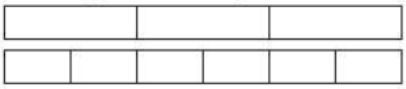
a.

Show that $\frac{3}{5}$ is equivalent to $\frac{\quad}{10}$.



b.

Show that $\frac{2}{3}$ is equivalent to $\frac{\quad}{6}$.



5. Simplify each fraction using the GCF or Prime Factorization Method.

a. $\frac{6}{16}$ b. $\frac{21}{24}$ c. $\frac{12}{30}$ d. $\frac{42}{54}$

6. Each year, AHS puts on a talent show to showcase student talent. This year, 36 students are participating. Create a fraction to show what portion of the show is each talent and then simplify your fraction. You will also include what the GCF was for each fraction that you simplified.

Type of Act	Number of Acts	Portion of Show	GCF	Simplified Portion of Show
Singing	10			
Dancing	9			
Playing an instrument	8			
Lip-synching	4			
Other	5			

7. Convert each fraction to either an improper fraction or mixed number. Make sure your fraction is simplified.

a. $\frac{21}{6}$ b. $2\frac{1}{5}$ c. $\frac{29}{5}$ d. $4\frac{3}{5}$

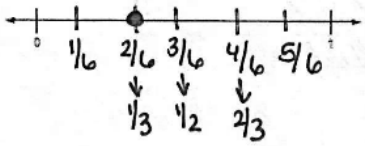
Foundations of Algebra
Day 3: Fractions on a Number Line
Practice Assignment

Unit 1: Number Sense & Quantity

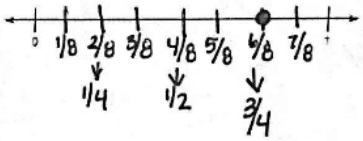
Name: Key Practice

0 25 50 75 100

1. Divide & label the number line into sixths. Plot $\frac{1}{3}$.



2. Divide & label the number line into eighths. Plot $\frac{3}{4}$.



2. Order the fractions from least to greatest. Show or explain your reasoning.

a. $\frac{5}{11}, \frac{5}{6}, \frac{5}{13}, \frac{5}{3}, \frac{5}{17}, \frac{5}{8}$

$\frac{5}{17}, \frac{5}{13}, \frac{5}{11}, \frac{5}{8}, \frac{5}{6}, \frac{5}{3}$

b. $\frac{7}{5}, \frac{7}{15}, \frac{7}{4}, \frac{7}{22}, \frac{7}{9}, \frac{7}{12}$

$\frac{7}{22}, \frac{7}{15}, \frac{7}{12}, \frac{7}{9}, \frac{7}{5}, \frac{7}{4}$

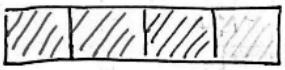
the bigger the denominator, the smaller the pieces

3. Create a rectangle that represents the following fractions and their colors:

a. ¼ yellow & ¾ red

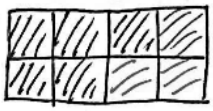
b. ½ red, ¼ blue, & ¼ yellow

2/4



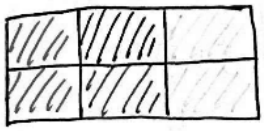
c. $\frac{5}{8}$ green, $\frac{1}{4}$ red, & $\frac{1}{8}$ blue

2/8



d. $\frac{1}{3}$ red, $\frac{1}{6}$ blue, $\frac{1}{6}$ green, & $\frac{1}{3}$ yellow

2/6 2/6

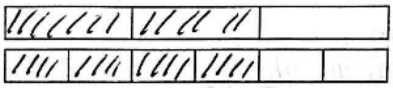


Foundations of Algebra Unit 1: Number Sense & Quantity Practice

4. Determine which fraction is equivalent to the following by shading in the appropriate boxes.

a. Show that $\frac{3}{5}$ is equivalent to $\frac{6}{10}$.

b. Show that $\frac{2}{3}$ is equivalent to $\frac{4}{6}$.



5. Simplify each fraction using the GCF or Prime Factorization Method.

a. $\frac{6}{16} \div 2 = \frac{3}{8}$ b. $\frac{21}{24} \div 3 = \frac{7}{8}$ c. $\frac{12}{30} \div 6 = \frac{2}{5}$ d. $\frac{42}{54} \div 6 = \frac{7}{9}$

6. Each year, AHS puts on a talent show to showcase student talent. This year, 36 students are participating. Create a fraction to show what portion of the show is each talent and then simplify your fraction. You will also include what the GCF was for each fraction that you simplified. ©CarnegieLearning

Type of Act	Number of Acts	Portion of Show	GCF	Simplified Portion of Show
Singing	10	10/36	2	5/18
Dancing	9	9/36	9	1/4
Playing an instrument	8	8/36	4	2/9
Lip-synching	4	4/36	4	1/9
Other	5	5/36	none	5/36

7. Convert each fraction to either an improper fraction or mixed number. Make sure your fraction is simplified.

a. $\frac{21}{6}$ 3 wholes $\frac{6}{6} + \frac{6}{6} + \frac{6}{6} + \frac{3}{6}$ $3\frac{3}{6} = 3\frac{1}{2}$

b. $2\frac{1}{5}$ $\frac{5}{5} + \frac{5}{5} + \frac{1}{5}$ $\frac{11}{5}$

c. $\frac{29}{5}$ 5 wholes $\frac{5}{5} + \frac{5}{5} + \frac{5}{5} + \frac{5}{5} + \frac{5}{5} + \frac{4}{5}$ $5\frac{4}{5}$

d. $4\frac{3}{5}$ $\frac{5}{5} + \frac{5}{5} + \frac{5}{5} + \frac{5}{5} + \frac{3}{5}$ $\frac{23}{5}$