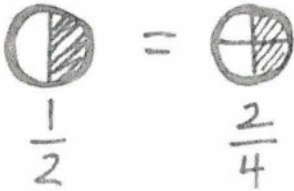
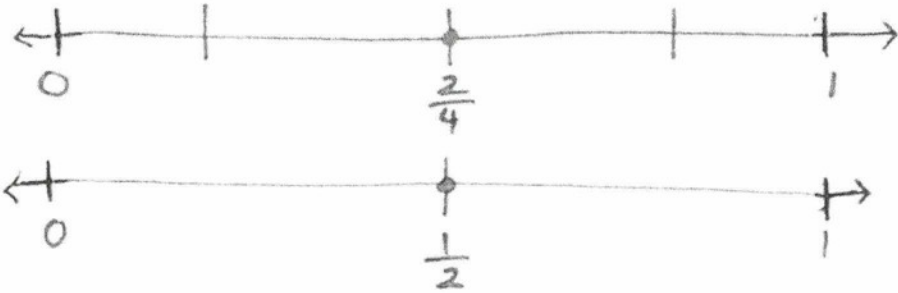


Study Guide for Equivalent Fractions and Percentages

1. Equivalent fractions can be represented pictorially, symbolically, and on a number line.

Pictorially	
Symbolically	$\frac{1}{2} \overset{\times 2 \checkmark}{=} \frac{2}{4}$ $\frac{1}{2} \overset{\times 3 \checkmark}{=} \frac{3}{6}$ $\frac{1}{2} = \frac{2}{4} = \frac{3}{6}$
Number line	

2. Equivalent Fractions can be reduced to their simplest form.

Step 1: Find the factors for the numerator and denominator

Step 2: Identify the Greatest Common Factor (GCF)

Step 3: Divide the numerator and denominator by the GCF

Example:

	Factors	GCF		Simplest Form
$\frac{9}{15}$	9: 1, 3, 9	3	$9 \div 3 = 3$	$\frac{3}{5}$
	15: 1, 3, 5, 15		$15 \div 3 = 5$	

3. Compare and order fractions

- $\frac{2}{7}, \frac{5}{7}, \frac{7}{7}$ - least to greatest. When fractions have like denominators, the fraction with the larger numerator is the larger fraction.
- $\frac{3}{8}, \frac{3}{5}, \frac{3}{4}$ - least to greatest. When fractions have like numerators, the fraction with the smaller denominator is the larger fraction. The whole is divided into fewer parts.
- Comparing fractions using $<$, $>$, and $=$
E.g. $\frac{3}{10} > \frac{1}{5}$ Create fractions with the same denominator. $\frac{1}{5} = \frac{2}{10}$ by multiplying the numerator and denominator by 2. $\frac{3}{10} > \frac{2}{10}$.
E.g. $\frac{1}{2} = \frac{4}{8}$ Reduce the fraction $\frac{4}{8}$ by dividing the numerator and denominator by 2. $\frac{1}{2} = \frac{1}{2}$
- Place the fractions on a number line.



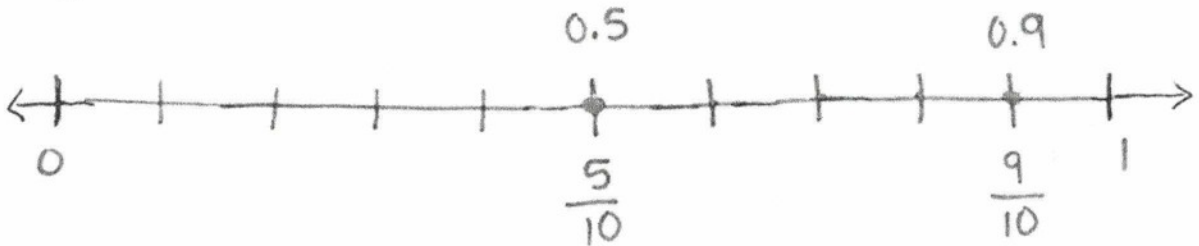
4. Expressing fractions as decimal numbers

$$\frac{4}{10} = 0.4$$

$$\frac{4}{100} = 0.04$$

$$\frac{40}{100} = 0.40$$

5. Placing fractions and decimals on a number line



6. Percentages







Percent means out of 100. A percentage can be written as a fraction and a decimal as well. The denominator must be either 10 or 100 for a percentage to be generated. If the denominator is not 10 or 100, an equivalent fraction must be created from which a percentage can be written.

$$\frac{89}{100} = 0.89 = 89\%$$

$$\frac{4 \times 5}{20 \times 5} = \frac{20}{100} = 0.20 = 20\%$$

Practice Questions

1. Colour the fraction in each circle to prove they are equivalent.

<p>1 a. </p> $\frac{6}{15} = \frac{2}{5}$	<p>1 b. </p> $\frac{2}{12} = \frac{1}{6}$
<p>2 a. </p> $\frac{2}{10} = \frac{1}{5}$	<p>2 b. </p> $\frac{10}{12} = \frac{5}{6}$
<p>3 a. </p> $\frac{10}{16} = \frac{5}{8}$	<p>3 b. </p> $\frac{12}{14} = \frac{6}{7}$

2. Create at least 2 equivalent fractions for the following fractions:

$\frac{1}{2}$

$\frac{5}{6}$

$\frac{2}{8}$

$\frac{2}{3}$

3. Place each of the equivalent fractions you created in question 2 on a number line. You will need to partition the line appropriately.



4. Write the following fractions in their simplest form.

$\frac{8}{16}$

$\frac{15}{20}$

$\frac{15}{18}$

$\frac{8}{10}$

5. Write the following fractions from greatest to least: $\frac{1}{6}$, $\frac{1}{3}$, $\frac{1}{10}$

6. Order the fractions from least to greatest: $\frac{3}{4}, \frac{3}{8}, \frac{3}{5}, \frac{3}{10}$

7. Compare the fractions using $<$, $>$, or $=$.

$$\frac{1}{2} \text{ — } \frac{3}{6}$$

$$\frac{2}{3} \text{ — } \frac{5}{6}$$

$$\frac{1}{2} \text{ — } \frac{1}{6}$$

8. Write the fraction as a decimal.

$$\frac{2}{10}$$

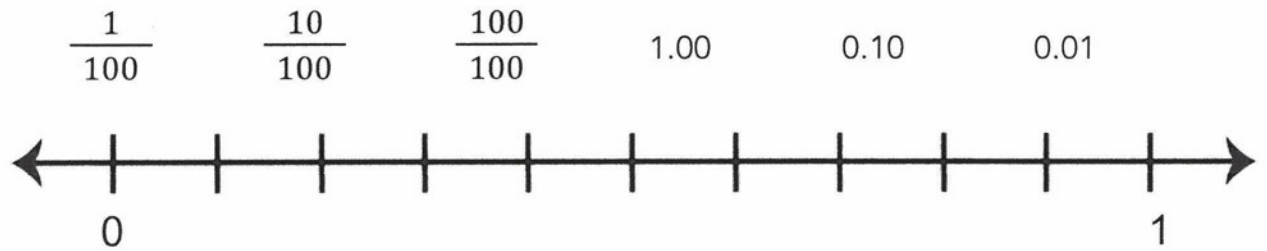
$$\frac{2}{5}$$

$$\frac{3}{10}$$

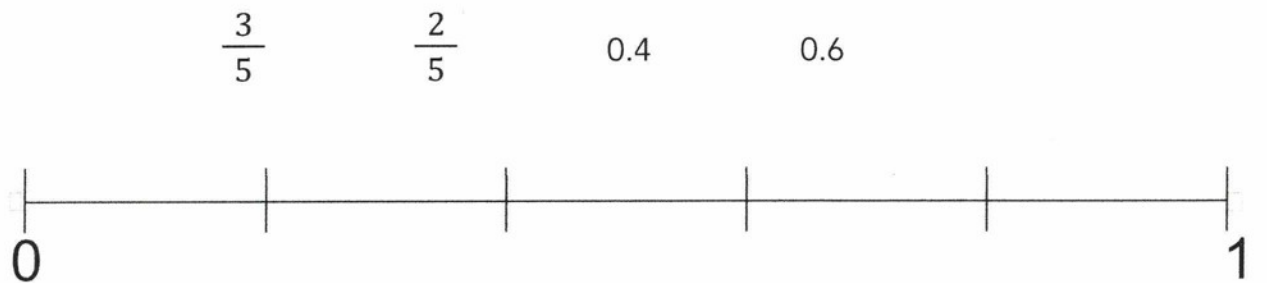
$$\frac{6}{20}$$

$$\frac{8}{50}$$

9. Place the fractions and decimals on the number line.



Place the fractions and decimals on the number line.







10. Complete the chart.

Fraction	Decimal	Percent
$\frac{6}{10}$		
$\frac{67}{100}$		
$\frac{2}{20}$		
$\frac{3}{5}$		

9.0 Review of Equivalent Fractions and Decimal Numbers







Name: _____

Complete the table below.

Picture	Fraction in Simplest Form	Fraction	Equivalent Fraction	Equivalent Decimal Number	Number line (Place the decimal number and an equivalent fraction)
	$\frac{\boxed{}}{5}$	$\frac{12}{20}$			
		$\frac{10}{25}$	$\frac{\boxed{}}{100}$		
		$\frac{10}{50}$		$0.\boxed{}$	

Practice Questions **KEY**

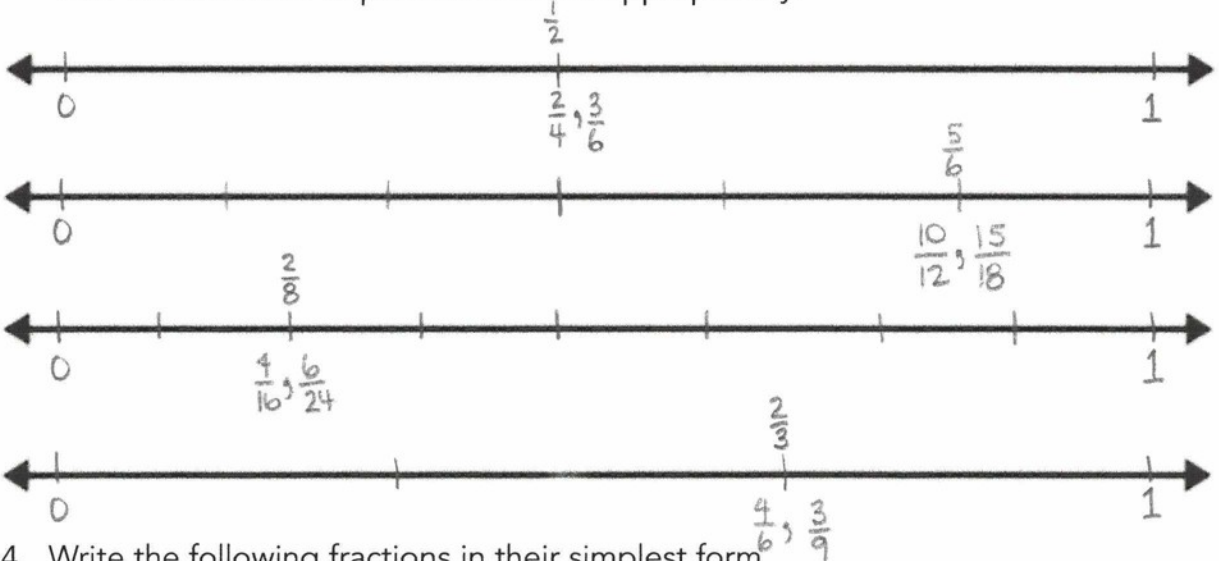
1. Colour the fraction in each circle to prove they are equivalent.

<p>1 a.</p>  $\frac{6}{15} = \frac{2}{5}$	<p>1 b.</p>  $\frac{2}{12} = \frac{1}{6}$
<p>2 a.</p>  $\frac{2}{10} = \frac{1}{5}$	<p>2 b.</p>  $\frac{10}{12} = \frac{5}{6}$
<p>3 a.</p>  $\frac{10}{16} = \frac{5}{8}$	<p>3 b.</p>  $\frac{12}{14} = \frac{6}{7}$

2. Create at least 2 equivalent fractions for the following fractions: *Answers may vary.*

$$\frac{1}{2} \times \frac{2}{2} = \frac{2}{4} \quad \frac{1}{2} \times \frac{3}{3} = \frac{3}{6} \quad \frac{1}{2} \times \frac{5}{5} = \frac{5}{10} \quad \frac{1}{2} \times \frac{6}{6} = \frac{6}{12} \quad \frac{1}{2} \times \frac{5}{5} = \frac{5}{10} \quad \frac{1}{2} \times \frac{6}{6} = \frac{6}{12} \quad \frac{1}{2} \times \frac{5}{5} = \frac{5}{10} \quad \frac{1}{2} \times \frac{6}{6} = \frac{6}{12}$$

3. Place each of the equivalent fractions you created in question 2 on a number line. You will need to partition the line appropriately.



4. Write the following fractions in their simplest form.

$$\frac{8}{16} \div \frac{8}{8} = \frac{1}{2} \quad \frac{15}{20} \div \frac{5}{5} = \frac{3}{4} \quad \frac{15}{18} \div \frac{3}{3} = \frac{5}{6} \quad \frac{8}{10} \div \frac{2}{2} = \frac{4}{5}$$

8: 1, 2, 4, 8
16: 1, 2, 4, 8, 16

15: 1, 3, 5, 15
20: 1, 2, 4, 5, 10, 20

15: 1, 3, 5, 15
18: 1, 2, 3, 6, 9, 18

8: 1, 2, 4, 8
10: 1, 2, 5, 10

5. Write the following fractions from greatest to least: $\frac{1}{6}, \frac{1}{3}, \frac{1}{10} = \frac{1}{3}, \frac{1}{6}, \frac{1}{10}$

6. Order the fractions from least to greatest: $\frac{3}{4}, \frac{3}{8}, \frac{3}{5}, \frac{3}{10}$ $\frac{3}{10}, \frac{3}{8}, \frac{3}{5}, \frac{3}{4}$

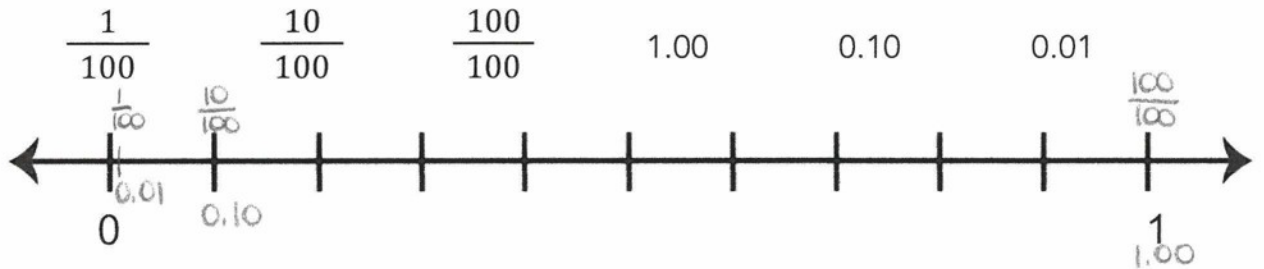
7. Compare the fractions using $<$, $>$, or $=$.

$\frac{3}{6} \overset{3 \times}{=} \frac{1}{2} = \frac{3}{6}$ $\frac{4}{6} \overset{2 \times}{=} \frac{2}{3} < \frac{3}{5}$ $\frac{3}{6} \overset{3 \times}{=} \frac{1}{2} > \frac{1}{6}$

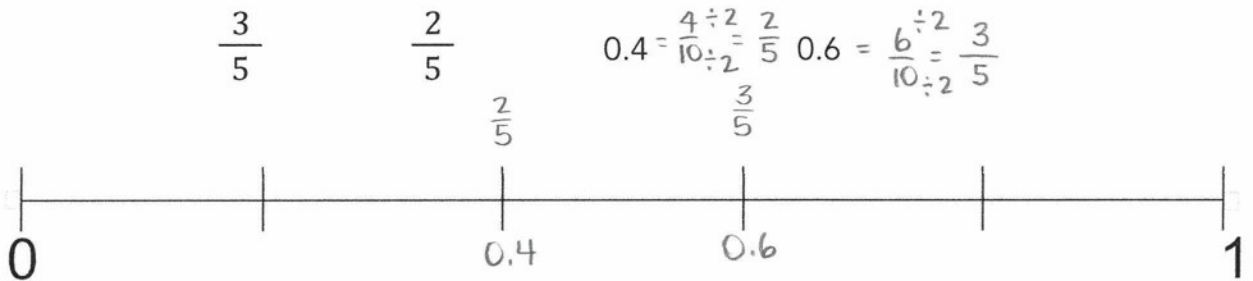
8. Write the fraction as a decimal.

$\frac{2}{10} = 0.2$ $\frac{2 \times 2}{5 \times 2} = \frac{4}{10} = 0.4$ $\frac{3}{10} = 0.3$ $\frac{6 \times 5}{20 \times 5} = \frac{30}{100} = 0.30$ $\frac{8 \times 2}{50 \times 2} = \frac{16}{100} = 0.16$

9. Place the fractions and decimals on the number line.



Place the fractions and decimals on the number line.



10. Complete the chart.

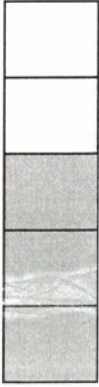



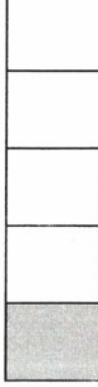
Fraction	Decimal	Percent
$\frac{6}{10} \overset{\times 10}{=} \frac{60}{100}$	0.6 or 0.60	60%
$\frac{67}{100}$	0.67	67%
$\frac{2}{20} \overset{\times 5}{=} \frac{10}{100}$	0.10	10%
$\frac{3}{5} \overset{\times 20}{=} \frac{60}{100}$	0.60	60%

9.0 Review of Equivalent Fractions and Decimal Numbers

Name: _____

Complete the table below.

Answer Key

Picture	Fraction in Simplest Form	Fraction	Equivalent Fraction	Equivalent Decimal Number	Number line (Place the decimal number and an equivalent fraction)
	$\frac{3}{5}$	$\frac{12}{20}$	$\frac{6}{10}$ $\frac{60}{100}$	0.6	
	$\frac{2}{5}$	$\frac{10}{25}$	$\frac{40}{100}$	0.4	
	$\frac{1}{5}$	$\frac{10}{50}$	$\frac{2}{10}$ $\frac{20}{100}$	0.2	