

# COMPARE PERCENTAGES AND FRACTIONS



**GRADE 5-6**

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# Classroom Procedure:

1. Begin by explaining to students that in order to compare numbers they must be in the same form.
2. While reading the content pages, reinforce conversion strategies and give students additional examples of comparing percentages and fractions to each other problems in order to help them practice the new skill. Use the additional resources to enhance understanding.
3. Introduce the notes on comparing percentages and fractions to each other. Have students practice problems with and without a calculator. Use the additional resources to enhance understanding.
4. Have students practice problems converting and comparing.
5. Follow Activity page with students. Have students work in pairs to play war. Students can work in groups of three if necessary.
6. Distribute Practice page. Check and review the students' responses as a class.
7. Distribute the Homework page. Have students work a few problems at the beginning of the next class to reinforce the skill.
8. In closing, ask students to explain why they think it is necessary to have numbers in the same form when being compared.
9. Allow for responses and discussion.

**Approximate Grade Level:** 5 – 6

**Objectives:** The students will be able to convert percentages and fractions into decimals and then compare using  $<$ ,  $>$ , or  $=$ .

**State Educational Standards\***

None for Grade 5

LB.Math.Content.6.RP.A.3.D

**Class Sessions (45 minutes):**

1 class

**Teaching Materials/Worksheets:**

*Compare Percentages/Fractions to Each Other* content pages (2), Activity pages (1), Practice page, Homework page, Quiz

**Student Supplies:** None

**Prepare Ahead of Time:**

Copy materials

Make decks of cards

**Options for Lesson:** Have students play bingo using fractions, percents and decimals, for advanced students begin to add in decimals to the comparisons as well, have students line up in order based on a single card they are given as a class, introduce real world scenarios with percent and fraction conversions.

\*Lessons are aligned to meet the education objectives and goals of most states. For more information on your state objectives, contact your local Board of Education or Department of Education in your state.



# Teacher Notes

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# Compare Percentages/Fractions to Each Other

When you want to compare two different types of numbers to each other, you have to convert them into the same form. When we compare percentages to fractions, we need to convert them into the same number form. Think of it this way – each number form speaks a different language so in order for them to be able to ‘communicate’ they have to be speaking the same language. In this case, we convert the percentage and the fraction into a decimal so that they are speaking the same ‘language’ and can be easily compared.

## How to convert a fraction to a decimal

To change a fraction to a decimal, divide the numerator by the denominator either using long division or a calculator.

$$\frac{7}{8} \longrightarrow 8 \overline{) 7,000} = 0.875$$

## How to convert a percent to a decimal

To change a percent to a decimal, write the percent as a fraction and then divide the numerator by the denominator either using long division or a calculator. You can also take the percent and move two decimal places to the left in order to quickly find the decimal form.

$$73\% \longrightarrow \frac{73}{100} \longrightarrow 0.73$$

You may be wondering why we don’t just convert the percentage to a fraction or the fraction to a percent and then compare. It seems like it would be easier, but often times it isn’t! Remember that to compare two fractions they must have the same denominator and doing this can take more time than converting to a decimal.



Don't forget the three basic symbols used to compare numbers!

**> Greater than**    **< Less than**    **= Equal to**

Let's try out our new comparing skills!

Compare  $\frac{3}{8}$  and 14%.

$$\begin{array}{r} .375 \\ 8 \overline{) 3.000} \\ \underline{-24} \phantom{0} \\ 60 \phantom{0} \\ \underline{-56} \phantom{0} \\ 40 \\ \underline{-46} \\ 0 \end{array}$$

$\frac{3}{8}$  → Dividend

$\frac{8}{8}$  → Divisor

$$\frac{3}{8} = 0.375$$

$$14\% = \frac{14}{100} = 0.14$$

The answer is because 0.375 is greater than 0.14.

There are times when you may be working with **improper fractions**.

Compare  $\frac{5}{4}$  and 90%.

$$\frac{5}{4} = 5 \div 4 = 1.25$$

$$90\% = \frac{90}{100} = 0.9$$

The answer is  $\frac{5}{4} > 90\%$  because 1.25 is greater than 0.9.

You may also find yourself working with **percentages that are over 100**.

Compare  $\frac{2}{3}$  and 136%.

$$\frac{2}{3} = 2 \div 3 = 0.67$$

$$136\% = \frac{136}{100} = 1.36$$

The answer is  $\frac{2}{3} < 136\%$  because 0.67 is less than 1.36.

We rounded the repeating decimal to the hundredths.



## Instructions

### War!

Using index cards marked with fractions and percent, have students play a game of war. You can have students create their own 'decks' by filling out their own index cards in order to take home and play with their families. If index cards are not available, cutting up pieces of cardstock or paper will work perfect for this activity as well! Be sure to include a few percentages over 100 and a few improper fractions.



## Instructions

Answer the following problems and show your work.

Your school took a survey of different activities that students wanted to do in gym class.

Football	$\frac{4}{5}$
Soccer	34%
Dodgeball	87%
Track	$\frac{2}{3}$
Volleyball	$\frac{1}{8}$

Which activity did more students want to do?

Football or Volleyball

Dodgeball or Track

Which activity did fewer students want to do?

Soccer or Dodgeball

Track or Volleyball

Write the activities in descending order.

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## Instructions

Answer the following problems and show your work.

Your school took a survey of different activities that students wanted to do in gym class.

Football	$\frac{4}{5}$
Soccer	34%
Dodgeball	87%
Track	$\frac{2}{3}$
Volleyball	$\frac{1}{8}$

Which activity did more students want to do?

**Football** or Volleyball       $0.8 > 0.125$

**Dodgeball** or Track       $0.87 > 0.67$

Which activity did fewer students want to do?

**Soccer** or Dodgeball       $0.34 < 0.87$

Track or **Volleyball**       $0.67 > 0.125$

Write the activities in descending order.

\_\_\_\_\_ **Dodgeball (0.87), Football (0.8), Track (0.67), Soccer (0.34), Volleyball (0.125)** \_\_\_\_\_

\_\_\_\_\_ **Dodgeball > Football > Track > Soccer > Volleyball** \_\_\_\_\_





# Homework

Name \_\_\_\_\_ Date \_\_\_\_\_

## Instructions

Answer the following problems using  $<$ ,  $>$ , or  $=$ .

$\frac{1}{4}$ <b>23%</b>	$\frac{9}{10}$ <b>90%</b>
$\frac{6}{7}$ <b>84%</b>	<b>12%</b> $\frac{1}{9}$
<b>102%</b> $\frac{11}{12}$	$\frac{6}{5}$ <b>73%</b>
<b>100%</b> $\frac{8}{8}$	$\frac{3}{4}$ <b>77%</b>
$\frac{2}{4}$ <b>51%</b>	<b>10%</b> $\frac{2}{8}$
<b>170%</b> $\frac{10}{5}$	$\frac{1}{11}$ <b>11%</b>
<b>18%</b> $\frac{1}{6}$	$\frac{10}{12}$ <b>80%</b>
$\frac{1}{100}$ <b>2%</b>	<b>150%</b> $\frac{3}{2}$



## Instructions

Answer the following problems using  $<$ ,  $>$ , or  $=$ .

$\frac{1}{4} > 23\%$	$\frac{9}{10} = 90\%$
$\frac{6}{7} > 84\%$	$12\% > \frac{1}{9}$
$102\% > \frac{11}{12}$	$\frac{6}{5} > 73\%$
$100\% = \frac{8}{8}$	$\frac{3}{4} < 77\%$
$\frac{2}{4} < 51\%$	$10\% < \frac{2}{8}$
$170\% < \frac{10}{5}$	$\frac{1}{11} < 11\%$
$18\% > \frac{1}{6}$	$\frac{10}{12} > 80\%$
$\frac{1}{100} < 2\%$	$150\% = \frac{3}{2}$



# QUIZ

Name \_\_\_\_\_ Date \_\_\_\_\_

## Instructions

Answer the following problems using  $<$ ,  $>$ , or  $=$ .

$$\frac{1}{3}$$

$$30\%$$

$$65\%$$

$$\frac{5}{7}$$

Write an example of a percent and a fraction that are equal to one another.

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# QUIZ

Name \_\_\_\_\_ **Answer Key** Date \_\_\_\_\_

## Instructions

Answer the following problems using  $<$ ,  $>$ , or  $=$ .

$$\frac{1}{3} > 30\%$$

$$65\% < \frac{5}{7}$$

Write an example of a percent and a fraction that are equal to one another.

Answers will vary

