

## Concept: Fraction/Decimal to Percent

Name:

### Warm-Up:

(Graffiti) Whole Class Activity

Complete the following brainstorming process to discuss common uses and meaning of fractions, decimals and percents and to develop an understanding that the same quantity can be expressed as a fraction, decimal and percent.

Material needed:

- Chart paper
- Colored marker (different color for each group)

Procedures:

1. Make three charts with the following heading “Real-life Uses of Fractions”, “Real-life Uses of Decimals”, and “Real-life Uses of Percent”.
2. Divide class into groups of 3 or 4 and provide each group with a chart and a specific color of marker.
3. Have the groups rotate to three different charts to record their uses. At each of the three charts, students get 1 minute to think and then 3 to 4 minutes to, individually and simultaneously, record ideas on paper.
4. After walking and recording, ask students to compare the lists eliciting ideas about how the fractions, decimals and percents are alike or different.
5. Wrap-up:
  - (a) On the board write  $\frac{1}{2}$ , 0.5, 50% and ask:
    - i. *What do you know about these three numbers?*
    - ii. *How are they the same?*
    - iii. *How are they different?*
    - iv. *Where do you see these numbers on our charts?*

*(Responses will vary)*

**COMPUTER COMPONENT**

**Instructions:** In follow the **Content Menu** path:

**Percent > Fraction/Decimal to Percent**

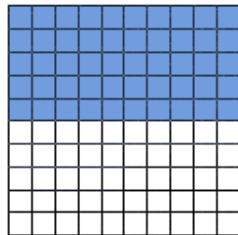


Work through all Sub Lessons of the following Lessons **in order**:

- *Decimals to Fractions... Place Values*
- *Expressing Decimal a as a Percent*
- *Expressing Fractions a as a Percent*
- *Percent Change*
- *Number Line*
- *Chart*
- *My Day*
- *Fraction to Decimal Division Table*
- *Shapes in a Square*
- *Parts of a Tangram*



As you work through the computer exercises, you will be prompted to make notes in your notebook/math journal.

**NOTES:**
**1. Expressing Decimals as a Percent:**


50 of the 100 squares are shaded meaning  $\frac{50}{100}$ , or 0.5 of the box

Percentage means “per 100” meaning 50% of the box is green.

Then **0.5** (a decimal number) = **50%**

There are two different methods we can use to convert a decimal into a percent.

Method 1: Move the decimal point **right 2** places and add the % sign

From Decimal		To Percent
0.125		12.5%

Method 2: Multiply by **100%**

Practice:

Express the following Decimals as Percents

(a)  $0.67 \times 100 = 67\%$

(b)  $0.865 \times 100 = 86.5\%$

## 2. Expressing Fractions as a Percent:

There are two different methods we can use to convert a Fraction into a percent.

Method 1: Use ***equivalent*** Fractions

$$\frac{7}{8} = \frac{7 \times 12.5}{8 \times 12.5} = \frac{87.5}{100} = \underline{87.5\%}$$

Method 2: Use ***Division***

$$\frac{11}{20}$$

$$\begin{array}{r} 0.55 \\ 20 \overline{) 11.00} \\ \underline{1000} \\ 100 \\ \underline{100} \\ 0 \end{array}$$

1. Divide the top of the fraction by the bottom

2. Multiply by 100 and add a % sign

$$0.55 \times 100 = \underline{55\%}$$

Practice:

Express as Percent using Method 1.

(a)  $\frac{11}{20} = \frac{55}{100} = 55\%$

Express as Percent using Method 2.

(b)  $\frac{7}{8} = 7 \div 8 = 0.875 \times 100\% = 87.5\%$

### 3. Percent Change

Percent changes are useful to help people understand changes in a value over time.

To calculate **Percent Change - Increase**:

$$\% \text{ increase} = \frac{\text{amount}(\text{increase})}{\text{original}(\text{number})} \times 100\%$$

Fill in the missing words.

To calculate **Percent Change - Decrease**:

$$\% \text{ decrease} = \frac{\text{amount}(\text{decrease})}{\text{original}(\text{number})} \times 100\%$$

Fill in the missing words.

Practice:

Find each percent change to the nearest percent. State if it is an increase to a decrease.

(a) From 363 m to 156 m

(b) From \$328 to \$333

$$\text{Decrease: } 363 - 156 = 207(\text{change})$$

$$\text{Increase: } 333 - 328 = 5(\text{change})$$

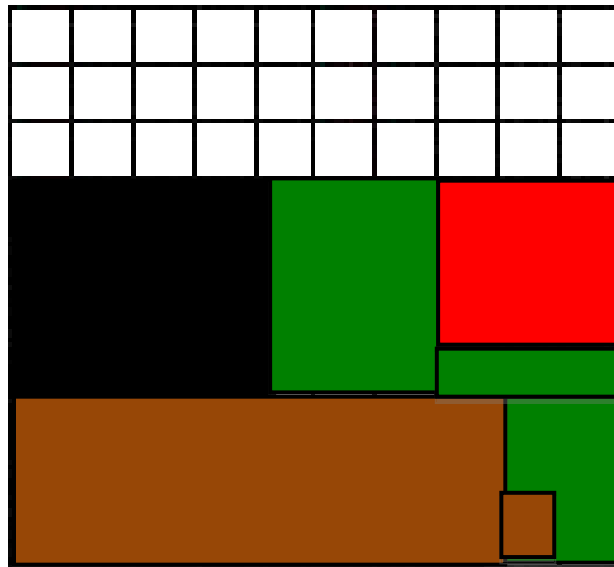
$$\frac{207}{363} \times 100\% = 57\% \text{ decrease}$$

$$\frac{5}{333} \times 100\% = 2\% \text{ increase}$$

### OFF COMPUTER EXERCISES

1. A new school is in the planning stages. The square block of land is purchased as indicated by the grid below. New ideas on how the land should be designed are requested. They need to make sure the following components are included in the design:

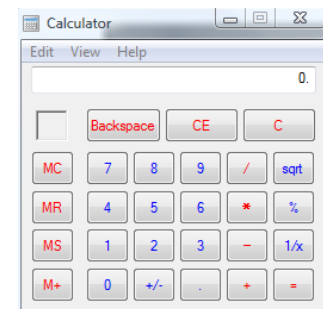
- School building 30 %  
(Indicated by the white squares)
- 0.16 is parking lot  
(Indicated by the black squares)
- Nine hundredths is flower beds  
(Indicated by the red squares)
- Football field and track is  $\frac{1}{4}$   
(Indicated by the brown squares)
- Playground equipment space is 20%  
(Indicated by the green squares)



Fill in the above grid with your plan. Make sure that the squares are colored to match the layout of the individual components.

2. Jacklyn is working out a problem involving  $\frac{1}{4}$ . She needs to enter this into a calculator.

*How would she enter  $\frac{1}{4}$  as a decimal on the calculator?*



**To find what  $\frac{1}{4}$  is as a decimal she can simply divide...**

$$1 \div 4 = 0.25$$

**Alternatively, we know that  $\frac{1}{4} = 25\%$  and we simply move the decimal 2 places to the left to find the value in decimal form = 0.25**

3. Complete the chart.

	Fraction	Decimal	Percent
(a)	$\frac{95}{100}$	<b>0.95</b>	<b>95%</b>
(b)	$\frac{1}{3}$	<b>0.33</b>	<b>33%</b>

(c)	$\frac{43}{100}$	0.43	43%
(d)	$\frac{5}{8}$	0.625	63%

4. Eli earns \$100 a week. He spends \$15 each week on movie rentals. *What percentage of Eli's weekly pay is spent on renting movies?*

$$\frac{\text{Movies(Rented)}}{\text{Earnings(Week)}} = \frac{15}{100} = 15\%$$

5. Of the 28 people on the school soccer team, 16 of the players have brown eyes. *Express this number as a percent.*

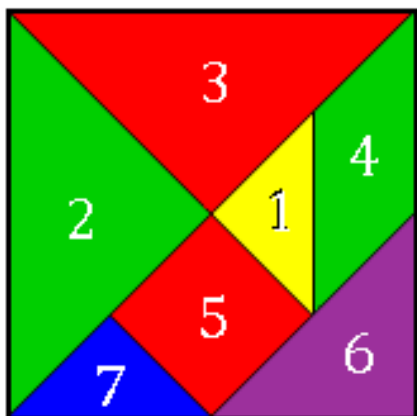
$$\frac{\text{Players(browneyes)}}{\text{Players(total)}} = \frac{16}{28} = 57\%$$

6. Last year, Linzi spent 9 hours of each week playing video games. This year, she hopes to spend 12 hours of each week playing video games. *What percent increase is this?*

$$\frac{\text{Hours(increased)}}{\text{Hours(lastyear)}} = \frac{3}{9} = 33\%$$

7. The tangram has a value of **one** unit. Find the value of each of the pieces that make up the tangram.

Fill in the table below.



NOTE: *Decimal and percent sum will be off slightly due to rounding.*

Piece	Fraction	Decimal	Percent
1	$\frac{1}{16}$	0.063	6%
2	$\frac{1}{4}$	0.25	25%
3	$\frac{1}{4}$	0.25	25%
4	$\frac{1}{8}$	0.125	13%
5	$\frac{1}{8}$	0.125	13%
6	$\frac{1}{8}$	0.125	13%
7	$\frac{1}{16}$	0.063	6%
Total	1	1	100%

When you are done, add up the answers in each column.

(a) How did you determine the answer for the different shapes? (*Explain your strategies*)

**I first started with the large triangles and determined that it required 4 large triangles to complete 1 whole tangram. Each large triangle =  $\frac{1}{4}$  of the whole. After, I was able to use the other shapes to create equivalent fractions.**