

PERCENTAGES, DECIMALS & FRACTIONS

Percentages, decimals and fractions are different ways of writing number values. Some common uses of percentages are to describe exam scores, phone battery availability, and interest rates. A common use for decimals is to describe the measurements of objects and a couple of common uses of fractions are to describe amounts for cooking and for referring to money.



KEY POINTS

- A percentage is a description of how much of something there is, in relation to the whole of that thing. The whole will always be 100. For example, 30% means the same as saying 30 parts out of a total of 100.
- A decimal is a number written with a decimal point and a remainder that represents portions of 10. (0.30)
- A fraction is a measure of a part of something in relation to the whole of a certain size, such as, $\frac{3}{8}$ or $\frac{7}{10}$. ($\frac{30}{100}$)
- 30%, 0.30 and $\frac{30}{100}$ all represent the same value.
- Being able to convert amongst the three expressions of values is an important skill for work.

Common Values in Percent, Decimal and Fraction Form:

Percent	Decimal	Fraction
1%	0.01	$\frac{1}{100}$
5%	0.05	$\frac{1}{20}$
10%	0.1	$\frac{1}{10}$
12½%	0.125	$\frac{1}{8}$
20%	0.2	$\frac{1}{5}$
25%	0.25	$\frac{1}{4}$
33⅓%	0.333...	$\frac{1}{3}$
50%	0.5	$\frac{1}{2}$
75%	0.75	$\frac{3}{4}$
80%	0.8	$\frac{4}{5}$
90%	0.9	$\frac{9}{10}$
99%	0.99	$\frac{99}{100}$
100%	1	--
125%	1.25	$\frac{5}{4}$
150%	1.5	$\frac{3}{2}$
200%	2	--



STEPS

Calculate percent:

1. State what you know in words.
 - "I fixed 57 out of 60 cars this month."
2. Turn the statement into a fraction.
 - $57/60$
3. Change the fraction to a decimal by dividing the numerator (top number) by the denominator (bottom number).
 - $57 \div 60 = .95$
4. Finally change the decimal to a percentage by multiplying it by 100. (move the decimal 2 places to the right)
 - $.95 \times 100 = 95$
5. Add the percent sign.
 - **95%**

Change percent to a decimal:

1. Convert a percentage to a decimal by **either**:
 - a) moving the decimal 2 places to the left
 - $95\% = .95\%$
 - b) dividing the percent by 100
 - 95% to a decimal $95 \div 100$
2. Write the decimal value without a percent sign.
 - **.95**

Change a decimal to percent:

1. Convert a decimal to percent by **either**:
 1. moving the decimal 2 places to the right
 - $.95 = 95$
 2. multiplying the decimal by 100
 - $.95$ to a percent $= .95 \times 100$
2. Write the value and add the percent sign.
 - **95%**

Change percent to a fraction:

1. Convert the percentage to a decimal by dividing the percent by 100.
 - 95% to a decimal $95 \div 100 = .95$
2. Write the decimal number over top of the number 1.
 - $.95/1$
3. Multiply the top and bottom numbers by 10, for every number after the decimal point.
 - $.95 \times 100$ and 1×100
4. Look at the total. It will be a correctly formed fraction.
 - $95/100$
5. Reduce the fraction to its simplest form by dividing the numerator and denominator by the highest number that can divide into both numbers evenly.
 - **$95/100$ can be reduced by a factor of 5. In its simplest form $95/100$ equals $19/20$.**

Change a fraction to percent:

- Convert the fraction to percent by dividing the top number by the bottom number.
 - $95 \div 100$
 - .95**
- Multiply the result by 100 and add the % sign to the result.
 - $.95 \times 100$
 - 95%**

Change a decimal to a fraction:

- Write the decimal number over top of the number 1.
 - $.95/1$
- Multiply the top and bottom numbers by 10, for every number after the decimal point.
 - $.95 \times 100$ and 1×100
- Look at the total. It will be a correctly formed fraction.
 - $95/100$
- Reduce the fraction to its simplest form by dividing the numerator and denominator by the highest number that can divide into both numbers evenly.
 - $95/100$ can be reduced by a factor of 5. **In its simplest form $95/100$ equals $19/20$.**

Change a fraction to a decimal:

- Divide the top number of the fraction by the bottom number of the fraction.
 - $95/100 = 95 \div 100$
 - .95**



EXAMPLES

I completed 27 of the 35 measurements needed for the floor plan, before noon.

- Make it a fraction: $27/35$
- Divide the numerator by the denominator: $27 \div 35 = 0.7714$
- Multiply the answer by 100: $0.7714 \times 100 = 77.14$
- Round to the nearest whole percentage and add the % sign: 77%

Rounded to the nearest whole percentage that is 77% of what I was asked to do for the day!

Think you understand how to calculate percentages, decimals and fractions?

Try it yourself on the next page.

USING THE SKILL



In the Workplace: Workers regularly use percentages, decimals and fractions. They may have to calculate and convert measurements from fractions to decimals/decimals to fractions. They may work with percent when handling invoices, calculating amounts of materials used, or reviewing yearly or quarterly sales data.

Convert 61% to a fraction.	Convert $\frac{5}{8}$ to percent.
Convert 73% to a fraction.	Convert $\frac{15}{16}$ to percent. <i>Round your answer to the nearest tenth.</i>
Convert 1.32 to a percentage.	Convert $\frac{25}{32}$ to a decimal. <i>Round your answer to the nearest tenth.</i>
Convert .585 to a percentage.	Convert $\frac{7}{16}$ to a decimal. <i>Round your answer to the nearest hundredth.</i>
Convert 187% to a decimal.	Convert .85 to a fraction.
Convert 77% to a decimal.	Convert 4.2 to a fraction.
Convert $\frac{17}{32}$ to a decimal. <i>Round your answer to the nearest tenth.</i>	Convert $\frac{13}{16}$ to a decimal. <i>Round your answer to the nearest tenth.</i>
Convert .67 to a fraction.	Convert .88 to a fraction.



REFLECTION

How do you use percentages, decimals and fractions at work? When do you use them?