

## SKILL #05

CODE: CNV.1

# Converting Fractions, Decimals & Percentages



## Core Concept

Fractions, decimals, and percentages are just different ways to show parts of a whole. Being able to convert between them helps you work with money, data, and real-life problems easily!

## The Big Picture

- Fraction: Parts out of a whole ( $\frac{3}{4}$ )
- Decimal: Based on powers of 10 (0.75)
- Percentage: Parts out of 100 (75%)

## FRACTION TO DECIMAL



Method: Divide the numerator by the denominator

Examples:

- $\frac{1}{2} = 1 \div 2 = 0.5$
- $\frac{3}{4} = 3 \div 4 = 0.75$
- $\frac{1}{8} = 1 \div 8 = 0.125$
- $\frac{2}{5} = 2 \div 5 = 0.4$

Pro Tip: Use long division or a calculator

## DECIMAL TO FRACTION



1. Write the decimal as a fraction with denominator 10, 100, 1000, etc.
2. Simplify by finding the GCD

Examples:

- $0.5 = \frac{5}{10} = \frac{1}{2}$
- $0.75 = \frac{75}{100} = \frac{3}{4}$
- $0.125 = \frac{125}{1000} = \frac{1}{8}$
- $0.6 = \frac{6}{10} = \frac{3}{5}$

## FRACTION TO PERCENTAGE



Method: Convert to decimal first, then multiply by 100

Examples:

- $\frac{1}{2} = 0.5 \times 100 = 50\%$
- $\frac{3}{4} = 0.75 \times 100 = 75\%$
- $\frac{1}{8} = 0.125 \times 100 = 12.5\%$
- $\frac{2}{5} = 0.4 \times 100 = 40\%$

Shortcut: Multiply fraction by 100% -->  $\frac{1}{4} \times 100\% = 25\%$

## PERCENTAGE TO FRACTION



Method: Write as fraction over 100, then simplify

Examples:

- $50\% = \frac{50}{100} = \frac{1}{2}$
- $75\% = \frac{75}{100} = \frac{3}{4}$
- $25\% = \frac{25}{100} = \frac{1}{4}$
- $60\% = \frac{60}{100} = \frac{3}{5}$

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**Converting Fractions, Decimals & Percentages****DECIMAL TO PERCENTAGE**

Method: Multiply by 100 and add % symbol

Examples:

- $0.5 = 0.5 \times 100 = 50\%$
- $0.75 = 0.75 \times 100 = 75\%$
- $0.125 = 0.125 \times 100 = 12.5\%$
- $1.25 = 1.25 \times 100 = 125\%$

Memory Trick: Move decimal point 2 places right

**PERCENTAGE TO FRACTION**

Method: Divide by 100 (move decimal point 2 places left)

Examples:

- $50\% = 50 \div 100 = 0.5$
- $75\% = 75 \div 100 = 0.75$
- $12.5\% = 12.5 \div 100 = 0.125$
- $125\% = 125 \div 100 = 1.25$

**ESSENTIAL EQUIVALENTS TO MEMORIZE**

Fraction	Decimal	Percentage
$\frac{1}{2}$	0.5	50%
$\frac{1}{4}$	0.25	25%
$\frac{3}{4}$	0.75	75%
$\frac{1}{3}$	0.333...	33.33...%
$\frac{2}{3}$	0.666...	66.66...%
$\frac{1}{5}$	0.2	20%
$\frac{4}{5}$	0.8	80%
$\frac{1}{8}$	0.125	12.5%
$\frac{1}{10}$	0.1	10%
$\frac{1}{100}$	0.01	1%

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34**SPECIAL CASES****Repeating Decimals:**

decimals that repeat forever

If the simplified denominator has any factor other than 2 or 5, the decimal will repeat.

- $\frac{1}{3} = 0.333\dots$
- $\frac{1}{6} = 0.1666\dots$
- $\frac{2}{7} = 0.2857142857\dots$

**Percentages Over 100%**

- $\frac{5}{4} = 1.25 = 125\%$
- $\frac{3}{2} = 1.5 = 150\%$

**Percentages Less Than 1%**

- $\frac{1}{200} = 0.005 = 0.05\%$
- $\frac{1}{1000} = 0.001 = 0.1\%$

**Common Mistakes to Avoid**

- ✗ Forgetting to simplify fractions
- ✗ Moving the decimal point the wrong way
- ✗ Confusing 0.5 with 5% (should be 50%)
- ✗ Treating percentages as decimals without converting

**Additional Resources**