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 (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
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:

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

Converting Fractions, Decimals & Percentages

DECIMAL TO PERCENTAGE ▶

Method: Multiply by 100 and add % symbol

Examples:

- 0.5 = 0.5 × 100 = 50%
- 0.75 = 0.75 × 100 = 75%
- 0.125 = 0.125 × 100 = 12.5%
- 1.25 = 1.25 × 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 ÷ 100 = 0.5
- 75% = 75 ÷ 100 = 0.75
- 12.5% = 12.5 ÷ 100 = 0.125
- 125% = 125 ÷ 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%

🔢 SPECIAL CASES

Repeating Decimals:

decimals that repeat forever

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

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

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