

Fraction Cheat Sheets

Fraction Cheat Sheets provide you with a tool for teaching your students note-taking, problem-solving, and organizational skills in the context of math lessons. This set of prepared cheat sheets includes detailed procedures for each of the four operations with fractions and mixed numerals.

The prepared sheets are designed to give you classroom-tested procedures which you can use to help your students master concepts dealing with fractions. Each sheet comes in two versions: with and without an example problem. Use the version without the example if you want to make an overhead transparency and/or if you want your students to write their own example.

Concepts

| <u>Topic</u> | <u>Cheat Sheet</u> |
|---------------------------|--------------------|
| Basic Concepts | 1 - 8 |
| Adding Fractions | 9 - 12 |
| Adding Mixed Numbers | 13 – 15 |
| Subtracting Fractions | 16 – 18 |
| Subtracting Mixed Numbers | 19 – 22 |
| Multiplying Fractions | 23 – 24 |
| Multiplying Mixed Numbers | 25 – 26 |
| Dividing Fractions | 27 – 29 |
| Dividing Mixed Numbers | 30 - 32 |

Fraction Cheat Sheet 5

Concept V: Convert Mixed Numbers to Fractions

To convert a mixed number to a fraction:

1. The denominator remains the same. ($D = D$)
2. Multiply the whole number by the denominator and add the numerator to get the new numerator. ($N2 = D \times W + N1$)

Mixed Numbers to Fractions - Examples

$$W \frac{N1}{D} = \frac{N2}{D}$$

$$4 \frac{2}{3} = \frac{14}{3}$$

Fraction Cheat Sheet 9

Adding Fractions I

1. Write the problem horizontally.
2. The denominator stays the same.
3. Add the numerators to get the new numerator.

Add Fractions I - Examples

$$\frac{2}{7} + \frac{4}{7} = \frac{6}{7}$$

← **Step 3**
← **Step 2**
Step 1

Fraction Cheat Sheet 21

Subtracting Mixed Numbers III

1. Write the problem vertically.
2. If the denominators are the same, copy the whole numbers and the denominators.
3. Change each fraction so that the LCD is the denominator.
4. Enter the denominator in the answer.
5. Borrow from the whole number.
6. Subtract the numerators to get the new numerator.
7. Subtract the whole numbers.

Subtracting Mixed Numbers III - Examples

Step 1 **Steps 2
and 3**

$$\begin{array}{r} 6 \\ - 4 \frac{4}{5} \\ \hline \end{array} = \begin{array}{r} \color{red}{5} \\ \cancel{6} \frac{5}{5} \\ - 4 \frac{4}{5} \\ \hline \end{array} \quad \leftarrow \text{Step 5}$$
$$\begin{array}{r} \color{red}{5} \\ \cancel{6} \frac{5}{5} \\ - 4 \frac{4}{5} \\ \hline 1 \frac{1}{5} \end{array} \quad \begin{array}{l} \leftarrow \text{Step 6} \\ \leftarrow \text{Step 4} \end{array}$$

Step 7 →

Fraction Cheat Sheet 26

Multiplying Mixed Numbers II

1. Write the problem horizontally.
2. Change mixed numbers to improper fractions. Rewrite the problem.
3. Cancel if possible. When canceling one number must be a numerator, and the other a denominator. (If you cancel everything you can, your answer will be reduced.)
4. Multiply the numerators to get the new numerators.
5. Multiply the denominators to get the new denominator.
6. If the fraction is improper, change it to a mixed number.

Multiplying Mixed Numbers II – Examples

$$\begin{array}{ccccccc} \text{Step 1} & & \text{Steps 2} & & \text{Step 4} & & \\ & & \text{and 3} & & & & \\ \hline 2 \frac{3}{4} \times 1 \frac{3}{5} & = & \frac{11}{4} \times \frac{8}{5} & = & \frac{22}{5} & = & 4 \frac{2}{5} \\ & & \text{1} & & & & \text{Step 5 Step 6} \\ & & & & & & \end{array}$$

Fraction Cheat Sheet 29

Dividing Fractions III

1. Write the problem horizontally.
2. Invert the second term and change the sign.
3. Cancel if possible. When canceling one number must be a numerator, and the other a denominator. (The answer will be reduced if everything is cancelled.)
4. Multiply the numerators to get the new numerators.
5. Multiply the denominators to get the new denominators.
6. If the divisor is smaller than the dividend, the fraction will be improper. Change it to a mixed number.

Dividing Fractions III - Examples

Step 1 **Steps 2 + 3** **Step 4**

$$\frac{3}{4} \div \frac{9}{20} = \frac{\cancel{3}^1}{\cancel{4}_1} \times \frac{\cancel{20}^5}{\cancel{9}_3} = \frac{5}{3} = 1 \frac{2}{3} \leftarrow \text{Step 6}$$

Step 5