

Fractions and Their Notations

Name: _____

Date: _____

Concepts

- Adding Fractions
- Dividing Fractions
- Equivalent Fractions and Simplifying Fractions
- Expressing a Decimal Number as a Percentage and Vice Versa
- Expressing a Fraction as a Decimal Number and Vice Versa
- Expressing a Fraction as a Mixed Number and Vice Versa
- Expressing a Fraction as a Percentage and Vice Versa
- Expressing a Fraction as a Periodic Number and Vice Versa
- Expressing a Mixed Number as a Decimal Number and Vice Versa
- Fractional Notation (Fractions)
- Multiplying Fractions
- Ordering Fractions and Mixed Numbers
- Subtracting Fractions
- The Common Denominator - Secondary 1, 2 and 3
- Types of Fractions

Adding Fractions

1. A snow-clearing driver works through one route over three days. On Monday he clears $\frac{3}{8}$ of the route and on Tuesday he clears $\frac{1}{6}$ of it.
 - a) What fraction of the route has he cleared after Tuesday?
 - b) On Wednesday he clears another $\frac{5}{24}$ of the route. What fraction of the route is cleared in total? Write your answer in lowest terms.
 - c) Compute $\frac{2}{5} + \frac{3}{4}$ and write the result as a mixed number.

Dividing Fractions

2. A bubble-tea counter serves tapioca pearls with a $\frac{3}{4}$ -cup scoop.
- a) How many full scoops can be served from $4\frac{1}{2}$ cups of pearls?
 - b) A $\frac{5}{6}$ kg bag of sugar is shared equally among 10 jars. How many kilograms go into each jar?

Equivalent Fractions and Simplifying Fractions

- 3.
- a) Write $\frac{42}{56}$ in lowest terms.
 - b) Write $\frac{90}{144}$ in lowest terms.
 - c) Complete: $\frac{7}{12} = \frac{?}{84}$.
 - d) Are $\frac{36}{60}$ and $\frac{3}{5}$ equivalent? Justify.

Expressing a Decimal Number as a Percentage and Vice Versa**4.**

- a) Write 0.375 as a percentage.
- b) Write 1.4 as a percentage.
- c) Write 6% as a decimal number.
- d) Write 12.5% as a decimal number.

Expressing a Fraction as a Decimal Number and Vice Versa**5.**

- a) Write $\frac{7}{8}$ as a decimal number.
- b) Write $\frac{9}{20}$ as a decimal number.
- c) Write 0.64 as a fraction in lowest terms.
- d) Write 0.35 as a fraction in lowest terms.

Expressing a Fraction as a Mixed Number and Vice Versa**6.**

- a) Write $\frac{47}{6}$ as a mixed number.
- b) Write $5\frac{3}{8}$ as an improper fraction.
- c) Write $\frac{100}{12}$ as a mixed number in lowest terms.

Expressing a Fraction as a Percentage and Vice Versa**7.**

- a) Write $\frac{3}{8}$ as a percentage.
- b) Write $\frac{9}{25}$ as a percentage.
- c) Write 65% as a fraction in lowest terms.
- d) Write 12.5% as a fraction in lowest terms.

Expressing a Fraction as a Periodic Number and Vice Versa**8.**

- a) Write $\frac{4}{9}$ as a periodic decimal number, using the bar notation.
- b) Write $\frac{7}{11}$ as a periodic decimal number.
- c) Write $\frac{5}{12}$ as a periodic decimal number. Careful: the repeating part does not begin right after the decimal point.
- d) Knowing that $\frac{1}{9} = 0.\overline{1}$, write $0.\overline{8}$ as a fraction.

Expressing a Mixed Number as a Decimal Number and Vice Versa**9.**

- a) Write $3\frac{3}{4}$ as a decimal number.
- b) Write $2\frac{1}{8}$ as a decimal number.
- c) Write 5.6 as a mixed number in lowest terms.
- d) Write 7.24 as a mixed number in lowest terms.

Fractional Notation (Fractions)**10.**

- a) In the fraction $\frac{7}{12}$, name the numerator and the denominator, and say what each one tells you.
- b) In a class of 32 students, $\frac{5}{8}$ chose the science museum for the class trip. How many students is that?
- c) Three identical granola bars are shared equally among 4 campers. Write one camper's share as a fraction, and explain what this shows about the link between a fraction and a division.

Multiplying Fractions**11.**

- a) Compute $\frac{2}{3} \times \frac{9}{10}$ and write the result in lowest terms.
- b) A video game gives a player 48 inventory slots. Two thirds of them are unlocked, and $\frac{3}{4}$ of the unlocked slots are already full. How many slots are full?
- c) Compute $1\frac{1}{5} \times \frac{5}{9}$.

Ordering Fractions and Mixed Numbers**12.**

- a) Put $\frac{3}{4}$, $\frac{5}{6}$, $\frac{7}{8}$ and $\frac{11}{12}$ in order from smallest to largest.
- b) Put $2\frac{1}{4}$, $\frac{9}{4}$, $2\frac{2}{5}$ and $\frac{11}{5}$ in order from smallest to largest, using $<$ and $=$ where each belongs.

Subtracting Fractions**13.**

- a) Compute $\frac{7}{8} - \frac{1}{3}$.
- b) Compute $5\frac{1}{4} - 2\frac{2}{3}$ and write the result as a mixed number.
- c) A rainwater barrel is $\frac{5}{6}$ full. A gardener uses an amount equal to $\frac{3}{8}$ of the full barrel. What fraction of the barrel is left?

The Common Denominator — Secondary 1, 2 and 3**14.**

- a) Rewrite $\frac{5}{12}$ and $\frac{7}{18}$ with their least common denominator, then say which of the two is larger.
- b) Rewrite $\frac{3}{8}$, $\frac{5}{6}$ and $\frac{7}{12}$ with their least common denominator.

Types of Fractions

15. For each number below, say whether it is a proper fraction, an improper fraction or a mixed number. Then, looking only at the five that are written as fractions, state which of those are already in lowest terms, and which one is a unit fraction.

$$\frac{5}{9}, \quad \frac{11}{4}, \quad 3\frac{1}{2}, \quad \frac{6}{6}, \quad \frac{8}{12}, \quad \frac{1}{7}$$

Synthesis — drawing on several sheets in this topic

16. A Secondary 1 class of 40 students votes on its end-of-year outing. The teacher records the three results in three different notations.

Outing	Share of the votes
Aquarium	$\frac{2}{5}$
Escape room	35%
Sugar shack	0.25

- a) Express all three shares as percentages.
- b) Did every student vote for one of the three outings? Justify.
- c) How many students voted for each outing?

Want the harder problems and the worked solutions?

The *Challenge Problems* set and the *Answer Keys* for Fractions and Their Notations — with the reasoning written out in full — are available at tutorinmontreal.ca.