

Unit 2

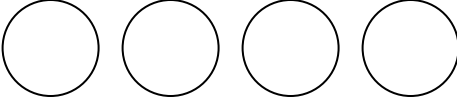
Rational Numbers

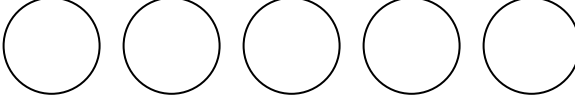
2-1 Fractions and Mixed Numbers

A series of horizontal dotted lines spanning the width of the page, providing a guide for handwriting practice.

2-1 Fractions and Mixed Numbers

In questions 1 and 2, each circle represents one unit.

1. Shade in $3\frac{1}{3}$ 

2. Shade in $\frac{13}{4}$ 

3. How many sevenths are in $5\frac{3}{7}$?

4. Change to improper fractions:

a) $4\frac{3}{8} = \underline{\hspace{2cm}}$ b) $7\frac{2}{3} = \underline{\hspace{2cm}}$ c) $6\frac{4}{9} = \underline{\hspace{2cm}}$ d) $11\frac{3}{7} = \underline{\hspace{2cm}}$

5. Change to mixed numbers:

a) $\frac{15}{4} =$ b) $\frac{22}{7} =$ c) $\frac{95}{8} =$ d) $\frac{53}{6} =$

6. Change to proper mixed numbers:

a) $3\frac{9}{4} =$ b) $5\frac{3}{2} =$ c) $7\frac{32}{7} =$ d) $4\frac{0}{3} =$

7. Write the following fractions in lowest terms:

a) $\frac{30}{40} =$

b) $\frac{24}{40} =$

c) $\frac{56}{84} =$

d) $\frac{80}{15} =$

e) $\frac{96}{18} =$

f) $\frac{42}{45} =$

g) $\frac{65}{100} =$

h) $\frac{28}{42} =$

i) $\frac{96}{128} =$

j) $\frac{42}{54} =$

8. Write in the missing number to make the fractions equivalent. (You may need to reduce first.)

a) $\frac{3}{4} = \frac{\quad}{12}$

b) $\frac{9}{4} = \frac{45}{\quad}$

c) $\frac{\quad}{16} = \frac{5}{2}$

d) $\frac{48}{\quad} = \frac{6}{7}$

e) $\frac{5}{20} = \frac{2}{\quad}$

f) $\frac{10}{12} = \frac{\quad}{42}$

g) $\frac{36}{81} = \frac{\quad}{54}$

h) $\frac{81}{123} = \frac{\quad}{82}$

A series of horizontal dotted lines spanning the width of the page, intended for writing or drawing.

2.2 Adding and Subtracting Fractions

Perform the following operations; give answers in lowest terms. Leave answers as improper fractions when applicable. For each question, use estimation to check whether the answer is reasonable before checking the answers in the back.

$$1. \frac{2}{7} + \frac{3}{7} =$$

$$2. \frac{11}{25} + \frac{4}{25} =$$

$$3. \frac{4}{15} + \frac{2}{15} + \frac{6}{15} =$$

$$4. \frac{5}{7} + \frac{3}{14} =$$

$$5. \frac{5}{6} + \frac{3}{8} =$$

$$6. \frac{3}{10} + \frac{4}{25} =$$

$$7. \frac{5}{12} + \frac{7}{18} =$$

$$8. \frac{2}{21} + \frac{7}{18} =$$

$$9. 3\frac{2}{7} + 2\frac{4}{21} =$$

$$10. 4\frac{3}{12} + 5\frac{12}{16} =$$

$$11. \frac{21}{4} + 2\frac{3}{7} =$$

$$12. \frac{5}{6} + \frac{3}{8} + \frac{7}{24} =$$

$$13. \frac{1}{6} + \frac{5}{8} + \frac{11}{12} =$$

$$14. \frac{5}{7} - \frac{2}{7} =$$

$$15. 1\frac{3}{5} - \frac{4}{5} =$$

$$16. \frac{5}{8} - \frac{7}{8} =$$

$$17. \frac{5}{12} - \frac{7}{24} =$$

$$18. \frac{5}{6} - \frac{3}{8} =$$

$$19. -\frac{5}{8} - \frac{1}{6} =$$

$$20. \frac{5}{18} - \frac{7}{24} =$$

$$21. \frac{7}{9} - \frac{4}{7} =$$

$$22. \frac{2}{3} - \frac{4}{5} + \frac{5}{6} =$$

$$23. 4 - 1\frac{3}{8} =$$

$$24. \frac{6}{5} - \left(-\frac{3}{4}\right) =$$

$$25. 3\frac{6}{7} - 4\frac{3}{4} =$$

$$26. 5\frac{3}{8} - 2\frac{1}{2} + 4\frac{3}{4} =$$

$$27. 3\frac{6}{7} - 1\frac{5}{8} - 1\frac{3}{4} =$$

$$28. \left(\frac{1}{2} + \frac{1}{3}\right) - \left(\frac{1}{4} + \frac{1}{5}\right) =$$

$$29. \left(\frac{1}{2} + 3\frac{3}{4}\right) - \left(2\frac{1}{4} - \frac{2}{3}\right) =$$

2-3 Multiplying Fractions

Lined writing area with horizontal dotted lines.

2-3 Multiplying Fractions

Perform the following operations; give answers in lowest terms. Leave answers as improper fractions when applicable. Reducing before multiplying is strongly encouraged. For each question, use estimation to check whether the answer is reasonable before checking the answers in the back.

$$1. (4)\left(\frac{3}{4}\right) =$$

$$2. \left(\frac{5}{12}\right)(6) =$$

$$3. 12\left(\frac{3}{4}\right) =$$

$$4. \frac{5}{7} \times \frac{2}{3} =$$

$$5. \frac{5}{6} \times \frac{3}{8} =$$

$$6. \frac{3}{5} \times \frac{20}{21} =$$

$$7. \frac{5}{12}\left(\frac{6}{45}\right) =$$

$$8. \frac{2}{21} \times \frac{7}{18} =$$

$$9. \frac{5}{7}\left(-\frac{2}{7}\right) =$$

$$10. \frac{35}{12} \left(3\frac{9}{15} \right) =$$

$$11. \left(\frac{21}{4} \right) \left(\frac{3}{7} \right) \left(\frac{20}{63} \right) =$$

$$12. \frac{9}{16} \times \left(\frac{3}{8} + \frac{7}{24} \right) =$$

$$13. \frac{1}{6} + \frac{5}{9} \times \frac{21}{10} =$$

$$14. 3\frac{2}{7} \times 2\frac{3}{23} =$$

$$15. 1\frac{3}{5} \left(-\frac{5}{24} \right) =$$

$$16. \left(-\frac{5}{8} \right) \left(-\frac{7}{8} \right) =$$

$$17. \left(-\frac{5}{12} \right) \left(-4\frac{1}{2} \right) \left(-\frac{16}{45} \right) =$$

18. $\frac{5}{6} - \frac{3}{8} \times \frac{2}{3} =$

19. $7 - 3\left(\frac{5}{8}\right) =$

20. $\frac{1}{2} + 6\left(\frac{5}{18}\right) - 2\frac{1}{6} =$

21. Create at least 3 fraction multiplication questions all having the answer as $\frac{3}{4}$, you may not use any of the questions from 1 - 20. Be creative

22. In a group of 240 students, $\frac{1}{3}$ have blond hair, $\frac{1}{4}$ have black hair and $\frac{1}{5}$ have red hair. The rest have brown hair. How many students have brown hair?

2-4 Dividing Fractions

Lined writing area consisting of multiple horizontal lines for student work.

Lined writing area consisting of multiple horizontal dotted lines for text entry.

2-4 Dividing Fractions

1. Give the reciprocal of each number.

a) 5

b) $\frac{1}{3}$

c) $\frac{2}{3}$

d) $2\frac{3}{5}$ e) $-\frac{5}{2}$ f) $-3\frac{4}{7}$

Perform the following operations; give answers in lowest terms. Leave answers as improper fractions when applicable. For each question, use estimation to check whether the answer is reasonable before checking the answers in the back.

2) $6 \div \left(\frac{2}{3}\right) =$

3) $\frac{5}{12} \div \frac{1}{6} =$

4) $\frac{3}{4} \div 2 =$

5) $\frac{5}{7} \div \frac{2}{3} =$

6) $\frac{5}{6} \div \frac{3}{8} =$

7) $\frac{9}{10} \div \frac{12}{15} =$

$$8) 2\frac{11}{12} \div \left(3\frac{1}{9}\right) =$$

$$9) 2\frac{13}{18} \div 10\frac{1}{2} =$$

$$10) \frac{5}{7} \div \left(-\frac{3}{4}\right) =$$

$$11) \frac{\frac{5}{12} \left(\frac{6}{45}\right)}{\frac{2}{9}} =$$

$$12) \frac{21}{4} \div \frac{3}{7} \div \frac{35}{8} =$$

$$13. \frac{9}{16} \times \left(\frac{3}{8} + \frac{7}{24} \right) =$$

$$14. \frac{1}{6} + \frac{5}{9} \div \frac{10}{21} \times \frac{3}{14} + \frac{1}{2} =$$

$$15. \frac{2 + \frac{3}{4}}{3 - \frac{1}{2}} =$$

$$16. \frac{4}{\frac{1}{3} - \frac{3}{5}} =$$

17) A recipe calls for $\frac{3}{4}$ cup of flour and $\frac{2}{3}$ cup sugar per batch of cookies.

a) How much of each ingredient would be needed to make 6 batches of cookies?

b) How many full batches can be made with 10 cups of flour and 8 cups of sugar?

*c) I was making 4 batches of cookies, but misread the recipe and thought it said $\frac{3}{4}$ cup of sugar and $\frac{2}{3}$ cup flour. What is the minimum amount of each ingredient I need to put in to correct my mistake and how many batches will I end up making?

2-5 Fractions <--> Decimals

A series of horizontal dotted lines for writing.

2-5 Fractions <--> Decimals

1. Change the following fractions to decimal form:

$\frac{1}{3}$	
$\frac{2}{3}$	

$\frac{1}{4}$	
$\frac{2}{4}$	
$\frac{3}{4}$	

$\frac{1}{5}$	
$\frac{2}{5}$	
$\frac{3}{5}$	
$\frac{4}{5}$	

$\frac{1}{9}$	
$\frac{2}{9}$	
$\frac{3}{9}$	
$\frac{4}{9}$	
$\frac{5}{9}$	
$\frac{6}{9}$	
$\frac{7}{9}$	
$\frac{8}{9}$	

$\frac{1}{8}$	
$\frac{2}{8}$	
$\frac{3}{8}$	
$\frac{4}{8}$	
$\frac{5}{8}$	
$\frac{6}{8}$	
$\frac{7}{8}$	

$\frac{1}{6}$	
$\frac{2}{6}$	
$\frac{3}{6}$	
$\frac{4}{6}$	
$\frac{5}{6}$	

2. Change the following decimals into lowest-terms fractions.

a) 0.15

b) 0.36

c) 0.48

d) 1.20

e) 1.24

f) 6.6

g) 0.225

h) 0.08

i) 0.96

j) 2.25

3. Change the following fractions to decimals. Round to two decimal places where necessary.

a) $\frac{3}{2}$

b) $\frac{3}{16}$

c) $\frac{5}{12}$

d) $\frac{7}{4}$

e) $\frac{8}{5}$

f) $\frac{23}{40}$

g) $\frac{11}{6}$

h) $\frac{9}{25}$

i) $\frac{7}{35}$

j) $\frac{13}{20}$

k) $4\frac{1}{3}$

l) $\frac{22}{7}$

A series of horizontal dotted lines for writing.

2-6 Multiplying and Dividing with Powers of 10

1. Multiply each number, a) to e), by these powers of ten: **10, 100, 1 000**

a) 53

b) 0.08

c) 1.75

d) 431.6

e) 0.0006

2. Multiply each number a) to e), by these powers of ten: **0.1, 0.01, 0.001**

a) 53

b) 0.08

c) 1.75

d) 431.6

e) 0.0006

3. Divide each number a) to e), by these powers of ten: **0.1, 0.01, 0.001**

a) 53

b) 0.08

c) 1.75

d) 431.6

e) 0.0006

4. Divide each number a) to e), by these powers of ten: **10, 100, 1 000**

a) 53

b) 0.08

c) 1.75

d) 431.6

e) 0.0006

Which of the operations in Questions 1 to 4 result in the same answers?

5. Perform the following operations:

$$\begin{array}{r} \text{a)} \quad 125 \\ \times 0.08 \\ \hline \end{array}$$

$$\begin{array}{r} \text{b)} \quad 6.3 \\ \times 0.005 \\ \hline \end{array}$$

$$\begin{array}{r} \text{c)} \quad 0.4 \\ \times 0.0063 \\ \hline \end{array}$$

$$\begin{array}{r} \text{d)} \quad 0.12 \\ \times 0.12 \\ \hline \end{array}$$

$$\begin{array}{r} \text{e)} \quad .099 \\ \times 5.05 \\ \hline \end{array}$$

$$\begin{array}{r} \text{f)} \quad 5.5 \\ \times 2.5 \\ \hline \end{array}$$

$$\begin{array}{r} \text{g)} \quad .001 \\ \times 0.01 \\ \hline \end{array}$$

$$\begin{array}{r} \text{h)} \quad 3200 \\ \times 300 \\ \hline \end{array}$$

$$\begin{array}{r} \text{i)} \quad 15000 \\ \times 3500 \\ \hline \end{array}$$

$$\begin{array}{r} \text{j)} \quad 3.14 \\ \times 1.44 \\ \hline \end{array}$$

$$\begin{array}{r} \text{k)} \quad 88000 \\ \times 3.2 \\ \hline \end{array}$$

$$\begin{array}{r} \text{l)} \quad 72500 \\ \times 0.025 \\ \hline \end{array}$$

6. Perform the following operations:

a) $300 \overline{)9}$

b) $450 \overline{)27}$

c) $8 \overline{)1.000}$

d) $16 \overline{)0.256}$

e) $45 \overline{)0.01125}$

f) $60\ 000 \overline{)90}$

g) $0.05 \overline{)7.5}$

h) $0.003 \overline{)0.129}$

i) $0.08 \overline{)124}$

j) $3.07 \overline{)21.49}$

k) $4.8 \overline{)10.896}$

l) $0.11 \overline{)0.01331}$

A series of horizontal dotted lines spanning the width of the page, providing a guide for handwriting practice.

2-7 Combined Operations With Decimals

1. Estimate the following (show your rounding):

a) $4.27 + 7.84$

b) $6.32 - 10.87$

c) $-2.69 - 5.24$

d) -2.75×12.176

e) $15.637 \div 2.312$

f) $-3.67 \div 7.85$

2. Perform the following operations. Give answers correctly rounded to two decimal places for division questions.

a) $6.3 + 4.9$

b) $5.4 + 11.97$

c) $6.75 - 2.34$

d) $4.5 - 7.2$

e) $12.3 - 4.76$

f) $-4.85 - 2.34$

g) $5 + 4.25 - 6.5$

h) $(-0.625 + 3.5) - (0.875 + 2 + 1.8)$

i) 4.6×2.3

j) -3.42×5.7

k) $(-13.4)(-2.76)$

l) $12 \div 1.25$

m) $26.48 \div 8$

n) $36.8 \div 4.36$

o) $17.51 \div 0.34$

p) $-64 \div 7$

q) $-3.4 + 4.2(5.6)$

r) $0.05 \times \frac{550 - 3400}{75}$

s) $(87.5 \div 0.4) - 0.012 \times 4000$