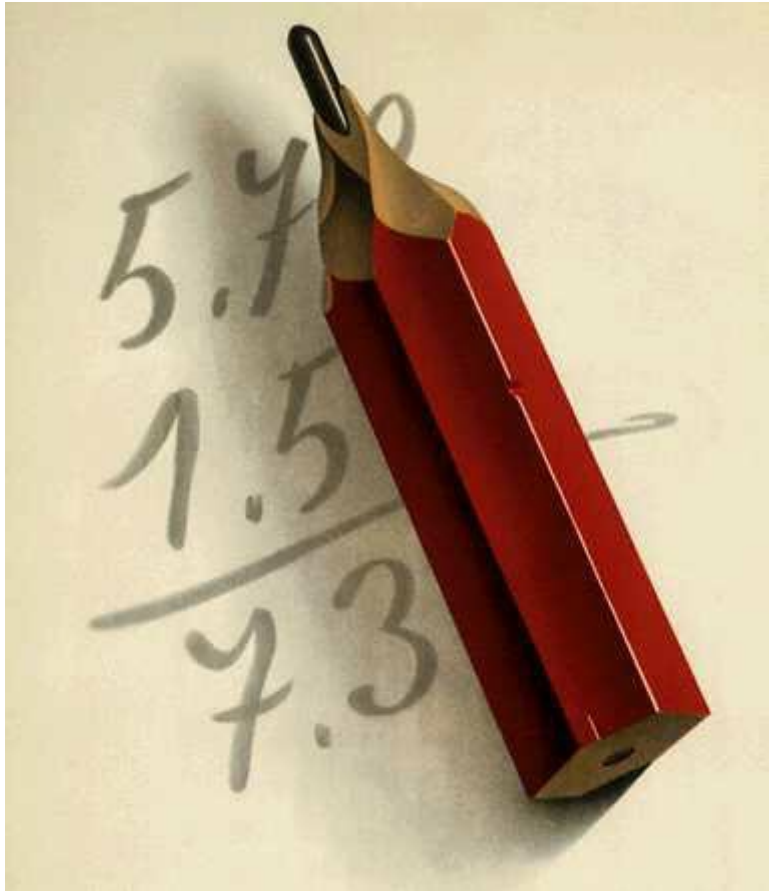


Decimals



**Academic Center for
Enrichment**

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Table of Contents

Purpose of Booklet	3
Warm-up	4
What is a decimal?	5
Place Values	6
Addition of Decimals	8
Subtraction of Decimals	10
Multiplication of Decimals	12
Division of Decimals	14
Solutions	16
Workbook Practice	17
Workbook Practice Solutions	18
More Resources	19

More Resources

Academic Center for Enrichment

Central Lakes College

1-800-933-0346 Ext. 8121

Percent Worksheets

<http://www.clcmn.edu/kschulte/prep.htm>

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Workbook Practice Solutions

- 1) 1
- 2) 6
- 3) 7
- 4) 3
- 5) 36.1
- 6) 2.014
- 7) 1.15
- 8) 5.25
- 9) 3.4
- 10) 1.45
- 11) 5.25
- 12) 184

Booklet

This booklet was written to help Central Lakes College students refresh their skills in decimal operations. It is not intended to replace any math course.

Booklet Guide

This booklet is divided into chapters. Each chapter consists of rules, examples and practice problems. You should attempt each problem and check their solutions. Incorrect answers should be attempted until they are correct.

A 'workbook practice' is given at the end of the booklet. Do not look back into the booklet to solve the problems! Check your answers. If you have an incorrect answer, return to that section and review. There are extra resources listed for more review.

Warm-Up

This warm-up will determine which sections you should practice. Solutions can be found on the page listed.

Place Values Pg 6

In the number 235.718, list the place values for:

5 _____

1 _____

7 _____

Addition of Decimals Pg 8

$$21.5 + 2.1 =$$

$$205.96 + 105.12 =$$

$$23.5 + .05 =$$

Subtraction of Decimals Pg 10

$$17.3 - 4.2 =$$

$$189.36 - 115.72 =$$

$$20.3 - .06 =$$

Multiplication of Decimals Pg 12

$$2.3 \times .2 =$$

$$.025 \times .27 =$$

$$23.4 \times 1.02 =$$

Division of Decimals Pg 14

$$.6 \div .5 =$$

$$.003 \div .15 =$$

Workbook Practice

In the number 8915.367, what digit is in the 1) tens place _____

2) hundredths place _____

3) thousandths place _____

4) tenths place _____

Simplify.

5) $34.5 + 1.6 =$ _____

6) $.034 + 1.98 =$ _____

7) $2.3 \times .5 =$ _____

8) $3.5 \times 1.5 =$ _____

9) $4.7 - 1.3 =$ _____

10) $4.02 - 2.57 =$ _____

11) $6.3 \div 1.2 =$ _____

12) $36.8 \div .2 =$ _____

Solutions**Place Values**

- 1) hundredths
- 2) ones
- 3) tenths
- 4) thousandths
- 5) 4
- 6) 2
- 7) 8
- 8) 1

Addition

- 1) 2.65
- 2) 3.8
- 3) .75
- 4) 15.66
- 5) 20.9
- 6) 9.65
- 7) 8.32
- 8) 27.83
- 9) 10.2
- 10) .1497
- 11) 1.032
- 12) 14.15
- 13) 3.94

Subtraction

- 1) 4.1
- 2) 4.4
- 3) 3.6
- 4) 71
- 5) 60.26
- 6) 4.3
- 7) 23.43
- 8) 22.44
- 9) 77.3
- 10) 15.1
- 11) 93.21
- 12) .024
- 13) .041
- 14) 7.33

Multiplication

- 1) .44
- 2) 9.96
- 3) .282
- 4) 44.84
- 5) .0042
- 6) .162
- 7) 22.568
- 8) 2.698
- 9) .02052
- 10) .128
- 11) 4.257
- 12) 311.31

Division

- 1) 2.1
- 2) .3
- 3) .6
- 4) 15
- 5) .84
- 6) 17.2
- 7) .45
- 8) .06
- 9) 25.1
- 10) 2.5
- 11) 7.4
- 12) .4
- 13) 7.5
- 14) 2.03

What is a decimal?

Decimal in Latin means ‘= of tenths’

It is believed that the decimal system is based on 10 because humans have 10 fingers.

Each space in a decimal is worth 10.

The decimal system was introduced into Europe c.1300. It greatly simplified arithmetic and was a much-needed improvement over the Roman numerals.

Division of Decimals

Rules:

1. Write as long division.
2. Change first number to a whole number by moving the decimal right.
3. Move the decimal under the division symbol the same number of places right as above.
4. Write decimal above the long division bar.

Example: $.5 \overline{) .6} = 5 \overline{) 6.0}$

$$\begin{array}{r}
 1.2 \\
 5 \overline{) 6.0} \\
 \underline{5} \\
 10 \\
 \underline{10} \\
 0
 \end{array}$$

Example: $.15 \overline{) .003} = 15 \overline{) .030}$

$$\begin{array}{r}
 .02 \\
 15 \overline{) .030} \\
 \underline{30} \\
 0
 \end{array}$$

Practice

Place Values

What is the place value of the number 3 in the following problems?

1) 15.036 _____

2) 23.279 _____

3) .3047 _____

4) .173 _____

In the number 21.48, what digit (number) is in the

5) tenths place _____

6) tens place _____

7) hundredths place _____

8) ones place _____

9) Draw your own decimal placement chart.

Addition of Decimals

Rules:

1. Line up decimals.
2. Add as usual.
3. Bring decimal down.

Example:

$$\begin{array}{r} 21.5 \\ + 2.1 \\ \hline 23.6 \end{array}$$

Decimals lined up.

Example:

$$\begin{array}{r} 205.96 \\ + 105.12 \\ \hline 311.08 \end{array}$$

Add as usual.

Example:

$$\begin{array}{r} 23.5 + .05 = 23.5 \\ \quad \quad \quad + .05 \\ \hline 23.55 \end{array}$$

Practice

Multiplication of Decimals

- 1) $2.2 \times .2 =$
- 2) $8.3 \times 1.2 =$
- 3) $9.4 \times .03 =$
- 4) $7.6 \times 5.9 =$
- 5) $.06 \times .07 =$
- 6) $.45 \times .36 =$
- 7) $2.48 \times 9.1 =$
- 8) $1.42 \times 1.90 =$
- 9) $2.052 \times .01 =$
- 10) $2.56 \times .05 =$
- 11) $15.8 \times 8.69 =$
- 12) $32.75 \times .13 =$
- 13) $115.3 \times 2.7 =$
- 14) Explain in your own words how to multiply decimals.

Multiplication of Decimals

Rules:

1. Multiply numbers (ignore the decimal).
2. Count decimal places to the right of the decimal in numbers being multiplied.
3. Move that many places left in the answer.

Example:

$$\begin{array}{r} 2.3 \text{ (1 decimal place)} \\ \times .2 \text{ (1 decimal place)} \\ \hline .46 \text{ (2 decimal places)} \end{array}$$

Example:

$$\begin{array}{r} .025 \text{ (3 decimal places)} \\ \times .27 \text{ (2 decimal places)} \\ \hline .00675 \text{ (5 decimal places)} \end{array}$$

Example:

$$\begin{array}{l} 23.4 \times 1.02 = 23.4 \text{ (1 decimal place)} \\ \quad \times 1.02 \text{ (2 decimals places)} \\ \hline 23.868 \text{ (3 decimal places)} \end{array}$$

Practice

Addition of Decimals

- 1) $2.45 + .2 =$
- 2) $1.5 + 2.3 =$
- 3) $.05 + .7 =$
- 4) $10.98 + 4.68 =$
- 5) $8.6 + 12.3 =$
- 6) $.607 + 2.24 =$
- 7) $1.29 + 8.36 =$
- 8) $8.3 + .02 =$
- 9) $25.3 + 2.53 =$
- 10) $9.95 + .25 =$
- 11) $.0607 + .089 =$
- 12) $.049 + .983 =$
- 13) $1.2 + .05 + 12.9 =$
- 14) $3.1 + .12 + .72 =$
- 15) Explain in your own words how to add decimals.

Subtraction of Decimals

Rules:

4. Line up decimals.
5. Subtract as usual.
6. Bring decimal down.

Example:

$$\begin{array}{r} 17.3 \\ - 4.2 \\ \hline 13.1 \end{array}$$

Decimals lined up.

Example:

$$\begin{array}{r} 189.36 \\ - 115.72 \\ \hline 73.64 \end{array}$$

Subtract as usual.

Remember to borrow

Example:

$$20.3 - .06 = \begin{array}{r} 20.\overset{2}{\cancel{3}}\overset{10}{0} \\ - .06 \\ \hline 20.24 \end{array}$$

Practice

Subtraction of Decimals

- 1) $5.2 - 1.1 =$
- 2) $7.6 - 3.2 =$
- 3) $9.2 - 5.6 =$
- 4) $72.3 - 1.3 =$
- 5) $85.48 - 25.22 =$
- 6) $256.35 - 252.05 =$
- 7) $65.58 - 42.15 =$
- 8) $22.49 - .05 =$
- 9) $78.1 - .8 =$
- 10) $25.4 - 10.3 =$
- 11) $125.62 - 32.41 =$
- 12) $.048 - .024 =$
- 13) $.154 - .113 =$
- 14) $15.62 - 8.29 =$
- 15) Explain in your own words how to subtract decimals.