

CHAPTER 4. DECIMAL NUMBERS (小数)

	↻ x10	↻ x10	↻ x10	↻ x10	↻ x10	↻ x10
Thousand	Hundred	Ten	Unit	Tenths	Hundredths	Thousandths
1000	100	10	1	$\frac{1}{10}$	$\frac{1}{100}$	$\frac{1}{1000}$
	↻ ÷ 10	↻ ÷ 10	↻ ÷ 10	↻ ÷ 10	↻ ÷ 10	↻ ÷ 10

- A decimal is a fraction whose denominator is a power of 10.
- 小数是分母为10, 100, 1000 的分数的另一种写法。($0.1 = \frac{1}{10}$)
- A point (or a dot) called the **decimal point** is placed after the unit's number to separate the whole number part from the decimal part of the number.
(whole number part) **23.17** (decimal part)
- Digits after the decimal point are called decimal places. (0.032 has 3 decimal places)
- 小数点后有几个数字, 就说这个小数是几位小数。
- **Addition and subtraction of Decimals**
(小数的加减法, 小数点必须对齐后再加减)
- **Multiplication of decimals**
(1. Multiplication of a decimal by power of 10)
(当小数乘以10, 100, 1000...时, 只需要将小数点向右边移动1, 2, 3个位)
(2. General Multiplication of decimals)
(两个小数相乘, 答案的 decimal places = 两个小数的 total number of decimal places)
- **Division of decimals**
(1. Division of a decimal by power of 10)
(当小数乘以10, 100, 1000...时, 只需要将小数点向左边移动1, 2, 3个位)
(2. Division of a decimal by a whole number)
(用普通除法, 所得的答案小数点应与被除数的小数点对齐)
(3. Division of a decimal by a decimal)
(shift decimal points the same number of places in dividend & divisor 把divisor变成整数) ($4.08 \div 0.3 = 40.8 \div 3 = 13.6$)
- **Operations of Decimals (小数的混合运算)**
(小数的混合运算法则, 与整数的混合运算法则相同)
(从最里面的括号做起, 由内向外)
(先乘除后加减)
(从左到右)

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1. Indicate 0.3, 0.6, 1.3, 1.4, 0.15 on the line.



2. Express the following as fractions in their lowest terms.

a. 0.8

b. 0.75

c. 0.013

d. 8.025

e. 0.664

f. 0.0204

g. 1.745

h. 1.6

i. 55.55

j. 2.116

3. Arrange the following decimal numbers in ascending order.

a. 0.4702, 0.7042, 0.07042, 0.2047, 0.0247

b. 32.05, 3.205, 0.325, 0.235, 0.532

4. Express each of the following as a decimal.

a. $\frac{5}{10}$

b. $\frac{47}{100}$

c. $\frac{23}{1000}$

d. $3\frac{6}{100}$

e. $10\frac{8}{1000}$

f. $6\frac{139}{1000}$

g. $\frac{12}{10}$

h. $\frac{81}{10}$

i. $\frac{6015}{1000}$

j. $\frac{2}{5}$

k. $\frac{4}{40}$

l. $\frac{67}{80}$

m. $\frac{215}{80}$

n. $\frac{245}{280}$

5. Evaluate the following :

a. $0.8 + 1.3 =$

b. $5 + 2.06 =$

c. $0.38 + 6.557 =$

d. $13.14 + 0.9 =$

e. $5.34 - 1.76 =$

f. $1 - 0.089 =$

g. $12.8 - 6 =$

h. $5.2 - 3.635 =$

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i. $10.04 + 0.664 - 3.38 =$

k. $10 - 4.1 + 0.6808 =$

m. $1.003 - 0.997 + 0.5 =$

o. $10.007 - (0.898 + 2.3) =$

j. $34 - 3.56 - 0.592 =$

l. $25.06 + 6 + 0.2 =$

n. $4.76 + 5.24 - 9.909 =$

p. $4.005 - (2.986 - 0.07) =$

6. Calculate the following :

a. $0.027 \times 100 =$

c. $2.727 \times 100 =$

e. $0.0024 \times 1000 =$

g. $0.04 \times 3 =$

i. $0.4 \times 0.0012 =$

k. $(0.1)^3 =$

m. $0.01 \times 0.2 \times 0.3 =$

o. $0.05 \times 9.8 \times 20 =$

b. $0.00489 \times 10 =$

d. $72 \times 1000 =$

f. $0.043 \times 10000 =$

h. $0.05 \times 0.2 =$

j. $310 \times 1.4 =$

l. $(0.02)^2 =$

n. $25 \times 5.3 \times 0.4 =$

p. $1.25 \times 0.96 \times 0.8 =$

7. Evaluate:

a. $324.89 \div 10 =$

c. $2 \div 1000 =$

e. $0.0024 \div 10 =$

g. $7.67 \div 4 =$

i. $0.5 \div 25 =$

k. $0.12 \div 0.6 =$

m. $0.04104 \div 0.038 =$

o. $(0.01 \div 0.005)^2 =$

q. $\frac{0.44 \times 12^2}{0.055} =$

b. $100.01 \div 100 =$

d. $73.891 \div 1000 =$

f. $426 \div 10000 =$

h. $8.826 \div 12 =$

j. $9.16 \div 0.8 =$

l. $5.72 \div 0.011 =$

n. $0.4794 \div 0.0102 =$

p. $(0.3)^2 \div (0.1)^2 =$

r. $\frac{0.04 \times 0.25^3}{0.008} =$

8. Calculate :

a. $45.3 - 0.7 \times 0.9 =$

c. $1.2 \times 0.2 + 3.2 \div 1.6 =$

e. $2.85 \div (4.5 - 0.375 \div 0.25) =$

g. $30 - [1 + (1 - 0.2 \times 0.8) \div 0.7] =$

i. $\frac{0.22 \times 0.13}{(0.13 \times 0.13) - (0.09 \times 0.13)} =$

b. $(31 + 5.4) \div 0.8 - 2.5 \times 4 =$

d. $0.25 \times 1.2 \div 3 + 0.1 =$

f. $3 \times 0.4 - 9 \times (1 - 0.98) =$

h. $(1.526 + 4.108) \div 0.72 \times 1.4 =$

j. $\frac{(0.16 \times 0.15) + (0.17 \times 0.15)}{0.15 \times 8 - 0.15 \times 3} =$