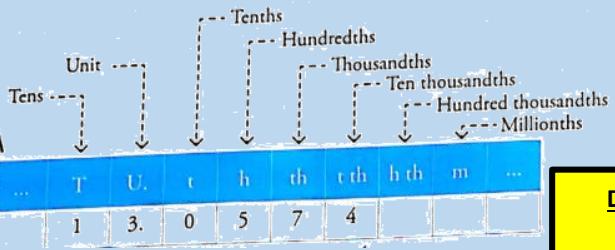


UNIT 5. Decimal numbers

Decimal numbers



How do you read a decimal number?

13.73 → thirteen units and seventy three hundredths
Thirteen point seventy three
Thirteen point seven three

Integer part			Decimal part		
H	T	U	t	h	th
4	3	8	9	7	
1	3	5	9	0	3
2	9	8	7	6	

Decompose into place values

25.043 → 2 tens + 5 units + 4 hundredths + 3 thousandths
(2T + 5U + 4h + 3t)

Decompose into place values and write how you read these numbers

25.987	6.002
125.058	78.2
0.8756	1.25
848.805	0.040
14.40	129.005
25048.12	35.01305
4004.562	200.305

Order and compare

Complete with > or <

a) 0,231 0,235

c) 3,87 3,85

b) 0,71 0,83

d) 5,12 3,12

e) 3,2 3,08

f) 0,086 0,087

Write a number between:

a) 2.4 and 2.5

b) 8.15 and 8.16

c) 0.105 and 0.106

Order these numbers from the largest to the smallest

- | | | | |
|-----------|--------|-------|-------|
| a) 4,025 | 4.205 | 4.502 | 4.25 |
| 4.225 | 4.2555 | | |
| b) 5.23 | 5.203 | 5.233 | 5.2 |
| c) 9.05 | 9.45 | 9.53 | 9.07 |
| d) 2.45 | 2.545 | 2.445 | 2.4 |
| 2.4545 | 2 | 2.24 | |
| e) 1.121 | 1.211 | 2.111 | 1.112 |
| f) 3.0101 | 3.001 | 3.101 | 3.012 |

- a) Truncate and round 4.083 to the nearest tenths. Compare the two results

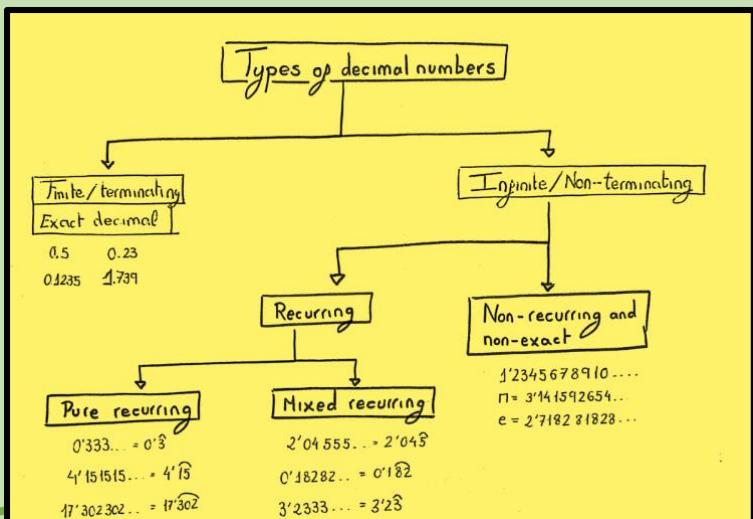
- b) Round the following to the nearest hundredths

- a) 3.159 b) 7.425 c) 9.144
d) 1.001 e) 2.499 f) 13.109

- c) Truncate these numbers to the nearest tenth

- a) 17.42 b) 4.27 c) 0.075 d) 8.892

Types of decimal numbers



Classify these decimal numbers.

- a) 6.24 c) 0.001 e) 3.14159...
- b) 1.212121... d) 4.3̄ f) 6.3333...

Classify the following decimal numbers. For those that are recurring decimal numbers, identify the digits that form their repetend.

- a) 2.95 c) 2.9999... e) 35.557557...
- b) 2.959595... d) 3.7555... f) 35.0077...

Operations:

Addition and subtraction

$$\begin{array}{r} 11.25 \\ + 3.75 \\ \hline 15.00 \end{array}$$

$$\begin{array}{r} 17.9 \\ - 5.45 \\ \hline 12.45 \end{array}$$

Integer divisor. Rounding quotients

$$\begin{array}{r} 1.926 \\ \hline 3 \\ 12 \\ 06 \\ 0 \end{array}$$

Multiplication

$$\begin{array}{r} 2.15 \\ \times 1.5 \\ \hline 1075 \\ 215 \\ \hline 3.225 \end{array}$$

2 decimal places
1 decimal place
 $2 + 1 = 3$ decimal places

Division with decimal numbers in the divisor

$$\begin{array}{r} 2592 : 1.8 \\ \times 10 \quad | 18 \\ 25920 \quad 079 \\ 0720 \quad 000 \end{array}$$

Perform the following operations.

- a) $4.65 + 78.2$ d) $105.36 - 5.782$
 b) $63.3 - 59.48$ e) $674.98 - 7.495$
 c) $0.045 + 0.97$ f) $9.834 + 65.4$

Perform these multiplications.

- a) $5.37 \cdot 2.4$ c) $2.26 \cdot 0.21$
 b) $0.792 \cdot 10.3$ d) $1.324 \cdot 5.3$

Calculate the quotient of these divisions to one decimal place.

- a) $4456 : 1.2$ c) $29235 : 5.92$
 b) $2678 : 4.83$ d) $4368 : 2.32$

Perform these operations.

- a) $(6.78 - 10.03 : 2.36) \cdot 0.5 + 3.1$
 b) $17.5 - (8.43 \cdot 0.4 + 2.8) : 4$
 c) $4.6 \cdot (12.8 - 5.08) - 3.47 \cdot 6$
 d) $20.65 + (3.7 \cdot 4 - 1.8 : 4) \cdot 5.2$

Problems

- How much should Helen pay for five jars of jam costing 1.35 euros each and three bags of crisps costing 3.49 euros each? How much will she get back if she pays with a 20 euros note?
- An Apple tree produced 59.78 kg of apples this year and 47.9 kg last year. If the farmer sells 1 kg of apples for 2.30 euros, how much more has he earned this year than last year?
- Given that an inch is equal to 2.54cm and a foot is equal to 30.48cm, answer:
 - How many metres are equal to 10 feet and 86 inches?
 - How many inches are 38 feet?
- Mary has filled the tank of her car with 56L of petrol. Each litre costs 1.426 euros. After paying for the petrol, she received 20.14 euros in change. How much money did she give the attendant?
- My grandmother wants to make 4.5kg of Apple pie. For each kilogram of pie, she needs 0.85kg of apples costing 1.24 euros/kg. How many kilograms of apples she needs? How much money will she spend? How much does each kg of Apple pie cost?

Investigate

- a) Use a calculator to complete some rows of this table:

1 : 9	0.11111...	0. <u>1</u>
2 : 9	0.22222...	0. <u>2</u>
3 : 9		0. <u>3</u>
... : 9	...	0. <u>...</u>



- b) Now, divide some numbers in this series by 9:

$$1 - 10 - 19 - 28 - 37 - \dots$$

- What do these numbers have in common?
- What do the quotients have in common?

- c) Do the same for the numbers in the series below:

$$2 - 11 - 20 - 29 - 38 - \dots$$

$$3 - 12 - 21 - 30 - 39 - \dots$$

$$4 - 13 - 22 - 31 - 40 - \dots$$

- What do you notice?
- Which numbers must you divide to obtain 4.555...?

VOCABULARY & EXPRESSIONS

Decimal number → número decimal
Integer part → parte entera
Decimal part → parte decimal
Decimal point → punto decimal (coma)
Units → unidades
Tens → decenas
Hundreds → centenas
Tenths → décimas
Hundredths → centésimas
Thousands → milésimas
Decompose into place values → descomponer en órdenes de unidades
Compare → comparar
Order → ordenar
Biggest, greatest, largest → más grande
Smallest, lowest → más pequeño
Truncate → truncar
Truncation → truncamiento
Round → redondear
Rounding → redondeo
Approximation → aproximación
Addition → suma
Add → sumar
Plus → más

Subtraction → resta
Subtract → restar
Minus → menos
Equal to → igual a
Solve, perform, compute, calculate → resolver/calcular
Multiplication → multiplicación
Multiply → multiplicar
Division → división
Divide → dividir
Multiplied by → multiplicado por
Divided by → dividido entre
Combined operations → operaciones combinadas
Exact decimal → decimal exacto
Recurring decimal → decimal periódico
Pure recurring decimal → decimal periódico puro
Mixed recurring decimal → decimal periódico mixto
Non-exact and non-recurring decimal → decimal no exacto y no periódico
Repetend → periodo
Types → tipos
Clasify → clasificar