

E1.5 Ordering

Name: _____ Class: _____ Date: _____ **Total: 11 marks**

KEY WORDS ordering 排序 • ascending 升序 • inequality symbol 不等号 • negative number 负数
• integer 整数

Objective

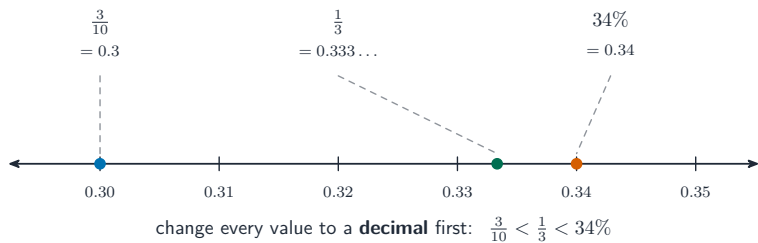
Build the skills to answer Extended exam questions on **ordering** 排序 — putting **integers** 整数, **decimals** 小数, **fractions** 分数 and **negative numbers** 负数 in order of size, and choosing the right **inequality symbol** 不等号.

You must be able to:

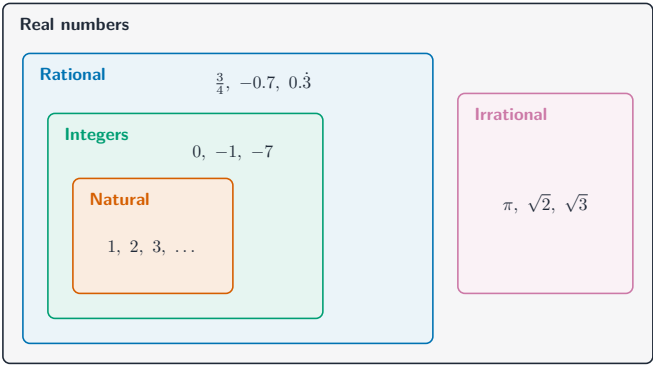
- write a mixed list of numbers in order of size
- convert fractions and percentages to decimals in order to compare them
- use the symbols =, ≠, >, <, ≥ and ≤ correctly

1 Worked examples

■ Turn everything into decimals, then read the line



Further left means smaller — that is the whole rule



A list can mix any of these; decimals let you compare them all

- **One form only:** change every value to a decimal before comparing. $\frac{5}{8} = 0.625$, $37\% = 0.37$.
- **Negatives:** the bigger the digit after the minus sign, the **smaller** the number. $-8 < -3$.
- **Worked:** order -3 , 0.5 , $-\frac{1}{2}$, 2 , -2.5 smallest first $\rightarrow -3, -2.5, -0.5, 0.5, 2$.
- **Symbols:** $>$ means "is greater than", $\geq$ means "is greater than or equal to".

Answer shapes (marked by **method marks** — M1 for a correct method, A1 for the correct answer): the decimal conversions earn the method mark, the final order earns the answer mark.

2 Practice

2.1 Write these numbers in order of size, starting with the smallest: 0.6 , $\frac{2}{3}$, 0.62 , $\frac{5}{8}$. [2]

2.2 Insert $<$ or $>$ between -7 and -9 . [1]

2.3 Insert $<$ or $>$ between $\frac{3}{8}$ and 0.4 . [1]

2.4 Write down all the integers n for which $-3 \leq n < 2$. [2]

3 Exam-style questions

3.1 Write these in order of size, starting with the smallest. [2]

$$0.38 \quad \frac{3}{8} \quad 37\% \quad \frac{2}{5}$$

3.2 The midnight temperatures in five cities were -3°C , 5°C , -8°C , 0°C and -0.5°C .

(a) Write the temperatures in order, coldest first. [2]

(b) Insert the correct symbol, $<$ or $>$, between -8 and -3 . [1]

Solutions

Marking: **M1** a correct method, **A1** the correct answer.

Each answer shows the steps, then the **result**.

2.1

- change each to a decimal: $\frac{2}{3} = 0.667$, $\frac{5}{8} = 0.625$

$$\mathbf{0.6, 0.62, \frac{5}{8}, \frac{2}{3}}$$

2.2

- -7 lies to the right of -9 on the number line

$$-7 > -9$$

2.3

- $\frac{3}{8} = 0.375$ and $0.375 < 0.4$

$$\frac{3}{8} < 0.4$$

2.4

- $\leq$ includes -3 , but $<$ excludes 2

$$\mathbf{-3, -2, -1, 0, 1}$$

3.1

- decimals: $\frac{3}{8} = 0.375$, $37\% = 0.37$, $\frac{2}{5} = 0.4$

$$\mathbf{37\%, \frac{3}{8}, 0.38, \frac{2}{5}}$$

3.2

(a)

- the more negative the temperature, the colder it is

$$\mathbf{-8, -3, -0.5, 0, 5}$$

(b)

- -8 lies further left than -3

$$-8 < -3$$