

Exercise walk-through

Population Distribution ■ 2.1

eXercise

You must be able to

- explain the physical factors that attract people (climate, water, flat land, good soil)
- explain the human factors that attract people (jobs, transport, cities)
- calculate and compare **arithmetic** 算术密度, **physiological** 生理密度, and **agricultural density** 农业密度
- describe where the world's people are concentrated

Method — Why people cluster

People concentrate where the **physical** environment is welcoming — mild climate, fresh water, flat land, fertile soil — and where **human** factors like jobs and transport exist. Deserts, ice, and high mountains stay empty.

Method — Three density measures

Arithmetic density = total people $\div$ total land. **Physiological density** = people $\div$ *farmable* land. **Agricultural density** = farmers $\div$ farmable land.

Method — Reading the measures

A high **physiological** density means much pressure on the farmland that exists. A low **agricultural** density suggests efficient, mechanised farming (few farmers feed many).

Practice 2.1 ■ 2 marks

State two physical factors that attract dense human settlement.

Solution 2.1

Method: Why people cluster

Worked steps

any two of: mild/temperate climate, fresh water, flat land, fertile soil, coastal access

B1 **B1**.

Practice 2.2 ■ 2 marks

Define physiological density.

Solution 2.2

Worked steps

the number of people **B1** per unit of arable/farmable land **B1**.

Practice 2.3 ■ 1 mark

A country has 20 million people, 200,000 km² of land, of which 50,000 km² is farmable.

- (a) Calculate its arithmetic density.
- (b) Calculate its physiological density.

Solution 2.3

Method: Three density measures

Worked steps

(a) $20,000,000 \div 200,000 = 100$ people/km² **B1**. (b) $20,000,000 \div 50,000 = 400$ people/km² of arable land **B1**.

Exam-style 3.1 ■ 1 mark

The number of people per unit of arable land is the

- A** arithmetic density
- B** physiological density
- C** agricultural density
- D** population pyramid

Solution 3.1

- A arithmetic density
- B physiological density**
- C agricultural density
- D population pyramid



Worked steps

B. people per arable land = physiological density.

Exam-style 3.2 ■ 1 mark

Most of the world's population is concentrated in

- A** high mountains and deserts
- B** midlatitude coasts and river valleys
- C** polar regions
- D** tropical rainforests only

Solution 3.2

- A high mountains and deserts
- B midlatitude coasts and river valleys** 
- C polar regions
- D tropical rainforests only

Worked steps

- B.** people cluster on temperate coasts and fertile river valleys.

Exam-style 3.3 ■ 1 mark

Country X has a low agricultural density.

- (a) State what agricultural density measures.
- (b) Explain what a low value suggests about its farming.

Solution 3.3

Method: Reading the measures

Worked steps

(a) the number of farmers per unit of farmable land **B1**. (b) few farmers work the land, suggesting efficient/mechanised, developed farming **B1**.