

6.4 The Size and Distribution of Cities

Name: _____ Class: _____ Date: _____ **Total: 10 marks**

KEY WORDS rank-size rule 位序 • primate city 首位城市 • gravity model 引力模型
• central place theory 中心地理论 • site 地点

Objective

Build the skills to answer exam questions on the **rank-size rule** 位序-规模法则 and city distribution.

You must be able to:

- state the **rank-size rule** 位序-规模法则
- define a **primate city** 首位城市
- outline **central place theory** 中心地理论
- explain the **gravity model** 引力模型

1 Worked examples

Study these first. Each one shows the method for a task used later.

■ Rank-size rule

The **rank-size rule** says the n th-largest city is about $1/n$ the size of the largest — the 2nd city $\approx 1/2$, the 3rd $\approx 1/3$, and so on.

■ Primate city

A **primate city** is far larger than all others (more than twice the second city) and dominates the country economically and culturally.

■ Central place & gravity

Central place theory explains the size and spacing of settlements by the services they provide. The **gravity model** predicts interaction as proportional to size and inversely to distance squared.

2 Practice

2.1 State the rank-size rule. [2]

2.2 Define a primate city. [2]

2.3 A country's largest city has 8 million people; the next largest has 1 million.
(a) Does this fit the rank-size rule or primacy? Explain. [2]

3 Exam-style questions

3.1 If the largest city has 12 million people, the rank-size rule predicts the 3rd city has about [1]

- **A** 12 million
- **B** 6 million
- **C** 4 million
- **D** 1 million

3.2 The gravity model predicts that interaction between two cities increases with their size and decreases with [1]

- **A** their populations
- **B** the distance between them
- **C** their site
- **D** their toponyms

3.3 A capital dominates its country, dwarfing every other city.

(a) Name this pattern. [1]

(b) State one problem a primate city can cause. [1]

Solutions

2.1 the nth largest city is about $1/n$ the size of the largest; e.g. the 4th city $\approx 1/4$ of the largest.

2.2 a city more than twice the size of the next largest that dominates the country.

2.3 (a) primacy — the largest is far more than twice the second, not the ~ 4 million the rank-size rule predicts.

3.1 C. 3rd city $\approx 12\text{M} \div 3 = 4$ million.

3.2 B. interaction falls with distance (squared) in the gravity model.

3.3 (a) primate city / urban primacy. (b) uneven development — resources and jobs concentrate in one city, neglecting the rest.