S2 Geography Practice Paper 2 | Map scale, gradient, rainfall, population and land use

Junior Secondary Geography

S2 Geography practice paper 2 on map scale and area conversion, contour gradient, rainfall statistics, population density and dependency ratio.

1. Map scale: distance and area conversion (16 marks)

A map has a scale of 1:20,000. The straight-line distance from A to B on the map is 6.4 cm, and the plan area of a lake on the map is 12 cm^2.

#	Question
1	(a) Calculate the actual distance from A to B in km.
2	(b) Calculate the actual area of the lake in km^2.
3	(c) If the actual distance from C to D is 3.6 km, what is the map distance in cm?
4	(d) A person walks from A to B at an average speed of 4 km/h. How many minutes does it take?

2. Contour lines and gradient (18 marks)

Two points P and Q on a footpath lie at 120 m and 300 m respectively. Their horizontal distance on the map is 6 cm at a scale of 1:20,000. The contour interval is 20 m.

#	Question
5	(a) Find the height difference between P and Q.
6	(b) Find the actual horizontal distance in km and the gradient as a percentage.
7	(c) Express the gradient in the form 1 in n (n to 1 d.p.).
8	(d) On another section the contour spacing is 5 mm at the same scale. Compare the steepness and explain.

3. Climate graph and rainfall statistics (16 marks)

Monthly rainfall (mm) at a station is: 12, 18, 45, 110, 240, 380, 395, 360, 290, 120, 45, 20.

#	Question
9	(a) Find the annual total and the mean monthly rainfall.
10	(b) Find the range of monthly rainfall.
11	(c) What percentage of the annual total falls in May to September?
12	(d) Identify the climate type and give one piece of evidence.

4. Population density, natural increase and dependency ratio (18 marks)

A district has 420,000 people over 12 km^2. Births were 3,360 and deaths 2,100 in a year. Age structure: 0-14 = 63,000; 15-64 = 315,000; 65+ = 42,000.

#	Question
13	(a) Calculate the population density (persons per km^2).
14	(b) Calculate the natural increase in number.
15	(c) Calculate the rate of natural increase per 1,000 (1 d.p.).
16	(d) Calculate the total dependency ratio (%, 1 d.p.).

5. Earthquake magnitude and energy (16 marks)

An earthquake of magnitude 6.0 was recorded, and another of magnitude 4.0 the same day. Each unit increase in magnitude multiplies wave amplitude by about 10 and energy by about 31.6.

#	Question
17	(a) How many times larger is the amplitude of the M6.0 event?
18	(b) How many times more energy is released by the M6.0 event?
19	(c) If M6.0 releases energy E, what does M7.0 release (in terms of E)?
20	(d) Hong Kong is not on a plate boundary; give one reason why tremors are still felt.

6. Urban land use (16 marks)

A new town has 19.8 km^2 of developed land: residential 4.8, commercial 1.2, industrial 2.4, government and community 1.8, open space 3.6, roads and transport 6.0. The residential area holds 96,000 people.

#	Question
21	(a) Find the percentage of residential land (1 d.p.).
22	(b) Name the two largest land-use types by share.
23	(c) Calculate the residential population density.
24	(d) Industry next to housing causes conflict. Suggest one mitigation and explain.