S1 Geography Practice Paper 2 | Map scale, bearings, contours, climate data

Junior Secondary Geography

S1 Geography practice paper with answers: map scale and area, bearings and back bearings, contour gradients, climate data, population density and land-use.

1. Scale and map measurement (16 marks)

Give distances and areas to 2 decimal places.

#	Question	Answer and marking notes
1	(a) The map scale is 1:20 000 and two points are 4.5 cm apart on the map. Find the real distance in km.	Real distance = 4.5 x 20 000 = 90 000 cm = 0.90 km.
2	(b) A road is 3 km long on the ground. How long is it on the map, in cm?	3 km = 300 000 cm; 300 000 / 20 000 = 15.00 cm.
3	(c) Walking at 4 km per hour, how many minutes are needed to cover the distance in (a)?	Time = 0.90 / 4 = 0.225 hours = 13.50 minutes.
4	(d) What real area in km² does 1 cm² on the map represent?	1 cm represents 20 000 cm = 0.20 km; 1 cm² is 0.20 x 0.20 = 0.04 km².

2. Bearings and back bearings (16 marks)

Give bearings as three digits, measured clockwise from north.

#	Question	Answer and marking notes
5	(a) The bearing of B from A is 065°. Find the back bearing of A from B.	Back bearing = 065° + 180° = 245°.
6	(b) Which of the eight compass points is closest to a bearing of 310°?	Each of the eight points spans 45°; NW is 315°, only 5° away, so the answer is NW.
7	(c) From A, walk 1.2 km east then 1.6 km north to reach B. Find the straight-line distance AB in km.	Distance = square root of (1.2^2 + 1.6^2) = square root of 4.00 = 2.00 km.
8	(d) From (c), find the bearing of B from A in whole degrees, and the average speed in km/h if the journey takes 40 minutes.	Bearing = inverse tan of (1.2 / 1.6) = 36.87°, about 037°; speed = 2.00 / (40 / 60) = 3.00 km/h.

3. Contours and gradient (18 marks)

Give percentages in whole numbers and angles to 1 decimal place.

#	Question	Answer and marking notes
9	(a) A hill top is 320 m high and the foot is 120 m high. Find the relative height.	Relative height = 320 - 120 = 200 m.

#	Question	Answer and marking notes
10	(b) Two points are 500 m apart horizontally with a 100 m height difference. Find the gradient as a percentage.	Gradient = 100 / 500 x 100% = 20%.
11	(c) From (b), express the same gradient as 1 in N and find N.	1 : N = 100 : 500, so N = 5 (1 in 5).
12	(d) On a 1:20 000 map, two adjacent contour lines are 2 cm apart and the contour interval is 20 m. Find the slope angle in degrees.	Horizontal distance = 2 x 20 000 = 40 000 cm = 400 m; tan of the angle = 20 / 400 = 0.05, so the angle is 2.9°.

4. Rainfall and temperature data (18 marks)

Give rainfall in mm and percentages to 1 decimal place.

#	Question	Answer and marking notes
13	(a) Six monthly rainfall totals are 30, 45, 80, 210, 320 and 260 mm. Find the six-month total.	Total = 30 + 45 + 80 + 210 + 320 + 260 = 945 mm.
14	(b) Find the mean monthly rainfall for those six months.	Mean = 945 / 6 = 157.5 mm.
15	(c) What percentage of the six-month total falls in the wettest month?	320 / 945 x 100% = 33.9%.
16	(d) The warmest month averages 29.0 °C and the coolest 16.0 °C. Find the annual range and say whether it points to a low-latitude or high-latitude climate.	Annual range = 29.0 - 16.0 = 13.0 °C; a small range points to a low-latitude (tropical to subtropical) climate.

5. Population density (16 marks)

Give densities in whole numbers and percentages to 1 decimal place.

#	Question	Answer and marking notes
17	(a) District A has 420 000 people over 21 km². Find its population density in people per km².	Density = 420 000 / 21 = 20 000 people per km².
18	(b) District B has 180 000 people over 12 km². Find its population density.	Density = 180 000 / 12 = 15 000 people per km².
19	(c) By what percentage is the density of A higher than that of B?	(20 000 - 15 000) / 15 000 x 100% = 33.3%.
20	(d) If the population of A grows 2% a year, find its population after two years as a whole number.	420 000 x 1.02^2 = 436 968 people.

6. Land use and conflict (16 marks)

Give areas to 1 decimal place and percentages in whole numbers.

#	Question	Answer and marking notes
21	(a) A district covers 50 km² and 35% is residential. Find the residential area.	Residential area = 50 x 35% = 17.5 km².
22	(b) Industry takes 15% and farmland 20%. Find their combined area.	Combined = 50 x (15% + 20%) = 50 x 35% = 17.5 km².
23	(c) If 5 percentage points of farmland are rezoned as residential, find the new residential area and its percentage.	New residential share = 35% + 5% = 40%; area = 50 x 40% = 20.0 km².
24	(d) State one land-use conflict this rezoning may cause and suggest one way to ease it.	Conflict: losing farmland cuts local food production and damages the rural landscape, setting farmers against residents. Remedy: require an agricultural and environmental impact assessment and swap in farmland of equal area elsewhere.