

**NATIONAL  
SENIOR CERTIFICATE**

**GRADE 10**

**NOVEMBER 2017**

**GEOGRAPHY P2  
MARKING GUIDELINE**

**MARKS: 75**

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This marking guideline consists of 11 pages.

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### GENERAL INFORMATION ON GRAAFF-REINET

Graaff-Reinet is a small town in the Eastern Cape with a population of around 36 000. This town is in the Sarah Baartman District and is one of the oldest towns in South Africa after Cape Town, Stellenbosch and Swellendam.

Nature conservation is a priority in this area, the Camdeboo National Park almost surrounds Graaff-Reinet. It provides the visitor with insights into the unique landscape and ecosystem of the Karoo. Space, nature and heritage combine to offer a Karoo tourism experience.



Coordinates: 32°15'08"S 24°32'26"E / 32°15,1'S 24°32,4'E

[Source: <https://www.google.co.za/images>]

**QUESTION 1: MULTIPLE-CHOICE QUESTIONS**

The questions below are based on the 1:50 000 topographic map 3224 BA & BC GRAAFF-REINET, as well as the orthophoto map of a part of the mapped area. Various options are provided as possible answers to the following questions. Choose the answer and write only the letter (A–D) in the block next to each question.

1.1 The map code of the topographic map of Graaff-Reinet indicates that the town lies on the ...

- A 32°E longitude and 24°N latitude.
- B 32°N longitude and 24°E latitude.
- C 32°S latitude and 24°E longitude.
- D 24°S latitude and 32°E longitude.

1.2 The contour interval of the orthophoto map is ...

- A 20 m.
- B 10 m.
- C 15 m.
- D 5 m.

1.3 The map scales that are evident on the topographic map is a ... scale.

- A ratio and a word
- B ratio and a fraction
- C line and a ratio
- D line and a word

1.4 The man-made feature at **6** on the orthophoto map is a ...

- A golf course.
- B caravan park.
- C stadium.
- D parking area.

1.5 Graaff-Reinet is in the ... province.

- A Western Cape
- B Eastern Cape
- C KwaZulu-Natal
- D North West

1.6 The scale of the orthophoto map is ... than that of the topographic map.

- A 5 times larger
- B 5 times smaller
- C 10 times larger
- D 10 times smaller

1.7 The landform that is found at **F** in block **F10** is a ...

- A conical hill.
- B cliff.
- C mesa.
- D butte.

C

1.8 Feature labelled **G** in block **I2** is a ...

- A benchmark.
- B trigonometrical station.
- C spot height.
- D reservoir.

B

1.9 The co-ordinates of the spot height 1076 in block **G7** are ...

- A 32°15'27"S 24°36'16"E.
- B 24°36'16"S 32°15'27"E.
- C 32°15'00"E 24°36'00"S.
- D 32°16'00"S 24°37'00"S.

A

1.10 Development east of Kroonvale in block **G4** is limited owing to ...

- A a lack of transport.
- B non-perennial water.
- C steep terrain.
- D churches.

C

1.11 The national route on the topographic map in block **F3** is the ...

- A R63.
- B N10.
- C N7.
- D N9.

D

1.12 The altitude shown by the trigonometric station in block **F4** is ...

- A 13 m.
- B 88 m.
- C 1217,3 m.
- D 1144 m.

C

1.13 The feature numbered **1** on the orthophoto map which acts as a windbreak is a ...

- A wall.
- B road.
- C row of trees.
- D reservoir.

C

1.14 The type of map projection used in the topographic map is:

- A Mercator
- B Gauss conform
- C Polar stereographic
- D Central meridian

**B**

1.15 The major primary activity visible in block **A3** is ...

- A fishing.
- B mining.
- C forestry.
- D farming.

**D**

(15 x 1) [15]

## SECTION B: MAPWORK CALCULATIONS AND TECHNIQUES

## QUESTION 2

- 2.1 Interpret the map scale on the topographical map into a word scale.  
(centimetres to metres)

1 cm on the map represents 500 m on the ground. ✓ (Concept) (1 x 1) (1)

- 2.2 Calculate the actual straight-line distance in kilometres of the runway in block C3. Show ALL calculations. Marks will be awarded for calculations.

Actual distance:  $Actual\ distance = Map\ distance \times Map\ scale$   
 $= 30\ mm \checkmark \times 50\ 000\ mm \checkmark$   
 $= 150\ 000\ mm$   
 $= \frac{150\ 000\ mm}{100\ 000\ mm}$   
 $= 1,5\ km \checkmark$

Alternative

$Map\ distance \times Map\ scale$   
 $= 3\ cm \checkmark \times 0,5\ km \checkmark = 1,5\ km \checkmark$

(Accept other mathematically correct paths that a learner may take to reach the correct answer.) (3 x 1) (3)

- 2.2 Use the information on the topographic map, to determine the magnetic declination for 2017. Show ALL calculations. Marks will be awarded for calculations.

Difference in years = 2017 – 2009  
 = 8 years ✓

Mean annual change = 7' W ✓

Total change = 8 yrs x 7'W  
 56'W ✓

Magnetic declination for 2017 = 25°07'W + ✓ 56'W  
 26°03' W ✓ of True North ✓

(6 x 1) (6)

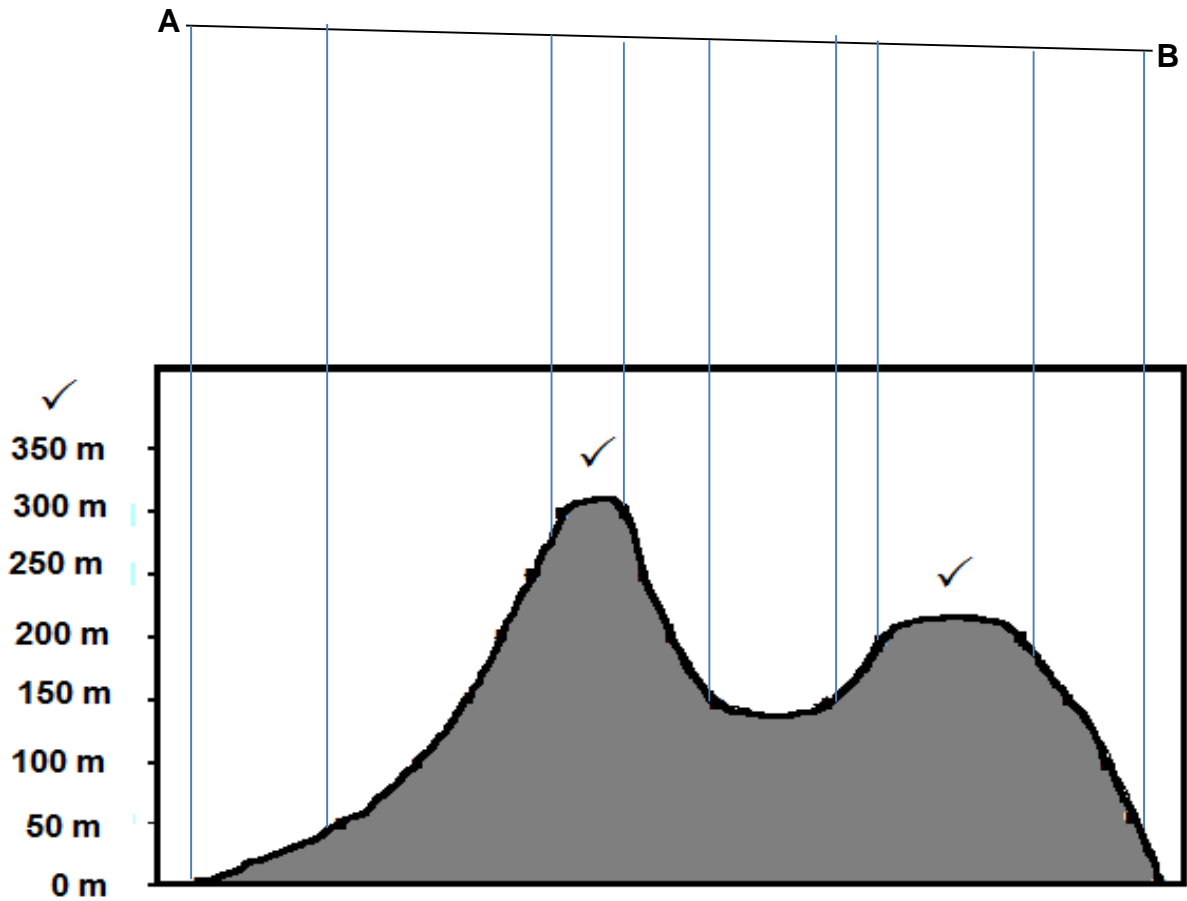
- 2.3 Calculate the average gradient on the orthophoto map between the trigonometric station 265 south of Graaff-Reinet and the spot height 806 south of Spandauville.

Show ALL calculations. Marks will be awarded for calculations.

Formula: Gradient =  $\frac{\text{Vertical interval (VI)}}{\text{Horizontal equivalent (HE)}}$   
 $VI = 806\ m - 771,8\ m$   
 $= 34,2\ m \checkmark$   
 $HE = 9\ cm \times 100\ m \checkmark$   
 $= 900\ m \checkmark$   
 $Gradient = VI/HE \checkmark \text{ OR } H/D \checkmark$   
 $= 34,2\ m/900\ m$   
 $= 26,3$   
 $= \frac{1}{26,3}$   
 $= 1 : 26,3 \checkmark$

(5 x 1) (5)

- 2.4 Draw a simple cross-section from point A to point B.  
Use a vertical scale of 5 mm = 50 m.



- 2.5 Determine the true bearing of the windmill from spot height 813 in block **B1**.

101° ✓✓

(3 x 1) (3)  
(2 x 1) (2)  
[20]

## SECTION C

## QUESTION 3: MAP AND PHOTO APPLICATION AND INTERPRETATION

3.1 What is the altitude of the following features?

3.1.1 National road in block **12**: 786,9 m ✓✓

3.1.2 Spot height **D** in block **B11**: 1 132 m ✓✓

3.1.3 Conical Hill in Block **A12**: 1 415,5 m ✓✓

(3 x 2) (6)

3.2 Choose the correct slope between the brackets. The type of slope that is found between points **2** and **3** on the orthophoto map is (concave, convex, uniform)

*Concave slope* ✓

(1 x 1) (1)

3.3 The area in block **C4** on the topographic map may be described as dry with seasonal rainfall.

Give TWO pieces of evidence to support this statement.

*Many reservoirs* ✓✓

*Many non-perennial streams* ✓✓

*Many windmills* ✓✓

*Lack of vegetation* ✓✓

*Many man made dams* ✓✓

(Any 2 x 2) (4)

3.4 Where do the farmers in block **B3** obtain their water supply? Mention ONE source.

*Non-perennial streams/rivers* ✓

*Furrows* ✓

*Reservoirs* ✓

*Underground at windmills* ✓

(Any 1 x 1) (1)

3.5 Graaff-Reinet has attractive landforms that are associated with igneous intrusions. Name THREE of these landforms that appear on the topographic map.

*Mesas* ✓

*Buttes* ✓

*Conical hills* ✓

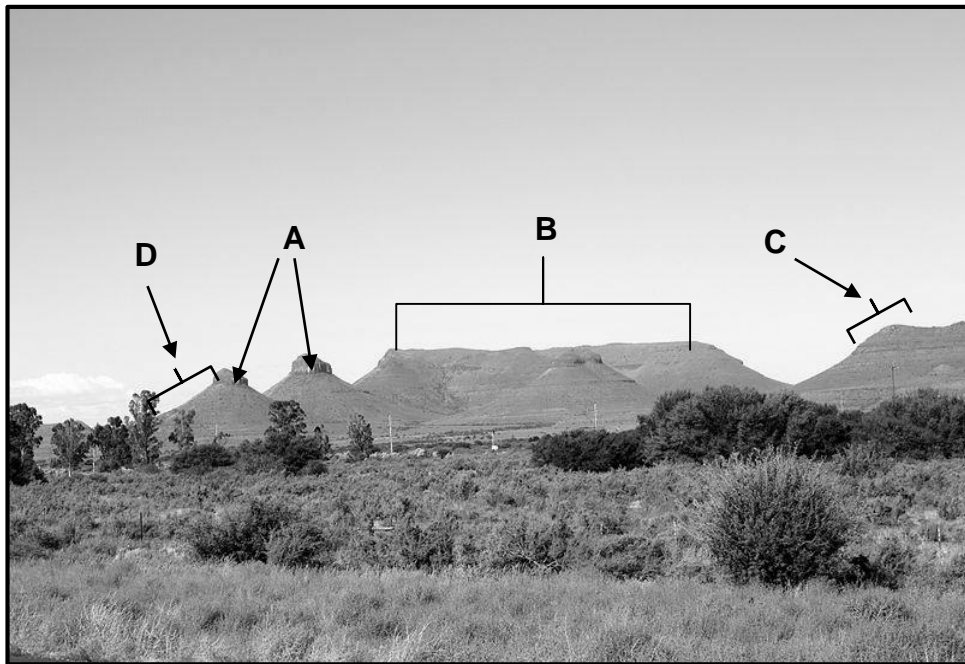
(3 x 1) (3)

3.6 What contour arrangement in block **C3** shows that the area chosen for the aerodrome was a suitable one for landing airplanes?

*The contour lines are spaced further apart* ✓

(1 x 1) (1)

3.7 Study the photograph below. It shows a typical Karoo landscape similar to the landscape in the topographic map and orthophoto map that you are using.



3.7.1 Is the picture above a *horizontal*, *oblique* or *vertical* photograph?

*Horizontal* ✓ (1 x 1) (1)

3.7.2 Is the landscape in the photograph a *natural*, an *agricultural* or a *built-up* environment?

*Natural* ✓ (1 x 1) (1)

3.7.3 The landform in block **12** and the landform in block **I12** and **J12** are represented by **A** and **B** respectively on the photograph above. Identify landforms **A** and **B**.

**A:** *Pointed Butte* ✓

**B:** *Mesa* ✓ (2 x 1) (2)

3.7.4 Identify the slope types labelled **C** and **D** on the photograph.

**C:** *Convex* ✓

**D:** *Concave* ✓ (2 x 1) (2)

3.8 Is Spandaukop in block **H2** a protected area? Support your answer.

Answer: *Yes* ✓ (1)

Support: *It is part of the Camdeboo National Park that is bounded by a green border* ✓✓

*Conservation is a priority in this area.* ✓✓ (Any 1 x 2) (3)

[25]

**QUESTION 4: (GIS)**

4.1 Write GIS in full.

*Geography Information Systems* ✓ (1 x 1) (1)

4.2 Identify point and line features in block **C4**.

Point feature: *Spot height/Trees/Reservoirs* ✓

Line feature: *Track, Hiking Trail, Runway* ✓ (Any 2 x 1)

4.3 Between the orthophoto map and the topographic map, which one was first captured by remote sensing techniques?

*Orthophoto map* ✓ (1 x 1) (1)

4.4 Remote sensing is any technology that can capture information about a place or an object from a distance. One can create maps of a place without being specifically at the place.

4.4.1 Give ONE advantage of remote sensing.

*One can monitor phenomena like cyclones and tornadoes without endangering one's life* ✓✓

*Remote sensing can assist with disaster management.* ✓✓

*It helps cartographers to measure the earth and create more accurate maps.* ✓✓

**(Any other ONE logical answer that responds geographically to the question).** (Any 1 x 2) (2)

4.4.2 From the list below identify with a cross (X) examples of remotely sensed data.

Data	Remotely Sensed Data	Remotely Sensed Data
	Yes	No
1. Satellite image	X ✓	
2. Rock types		X ✓

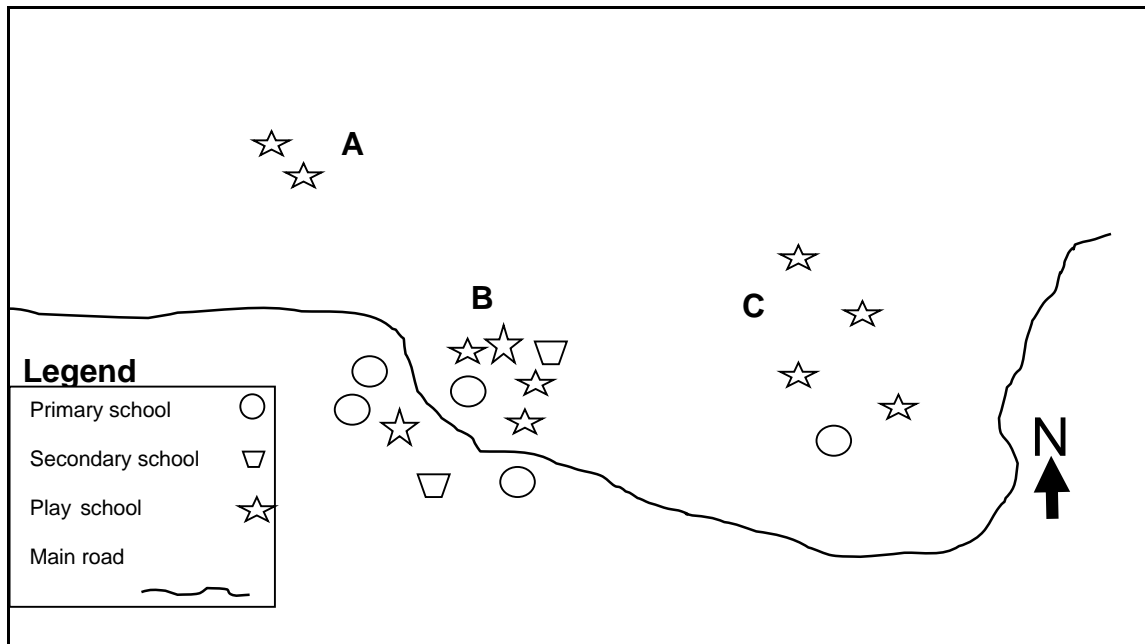
(2 x 1) (2)

4.5 List any TWO key components of GIS.

Components: *Hardware* ✓  
*Software* ✓  
*Data* ✓  
*People* ✓  
*Method* ✓

(Any 2 x 1) (2)

4.6



You are a businessman and you are given three places to choose from, to start a tuckshop business that will serve lunch for schools in Lubanzini. Locations are shown in the map above.

4.6.1 Using the knowledge that you have gained from GIS, and choose a suitable area from **A**, **B** or **C**?

*B* ✓ (1 x 1) (1)

4.6.2 Provide TWO reasons for your choice in QUESTION 4.6.1.

*Many schools in area B are close to each other ✓✓*  
*There is a road that is cutting through area B ✓✓*  
*There are three different types of schools with a larger variety of needs ✓✓* (Any 2 x 2) (4)  
[15]

**TOTAL: 75**