

3.1.2 Calculate the surface area ( $\text{in cm}^2$ ) of the box in which they will pack the telescope.

You may use the formula:

$$SA = 2(\ell \times b) + 2(b \times h) + 2(\ell \times h)$$

3.1.3 Write down the geometric shape of the box.

3.1.4 The surface temperature of the planet Mars is  $-67^\circ\text{F}$ . Convert  $-67^\circ\text{F}$  to  $^\circ\text{C}$ .

You may use the formula:

$$^\circ\text{C} = (^\circ\text{F} - 32) \div 1.8.$$

3.2 The Hubble Space Telescope, the largest space telescope ever launched, has an inner volume of  $184,2538 \text{ m}^3$ . The telescope has a diameter of  $4.2 \text{ m}$ .



3.2.1 Calculate the height of the Hubble Space Telescope. Round your answer to one decimal place.

You may use the following formula:

$$\text{Volume} = \pi \times \text{radius}^2 \times \text{height}$$

$$\pi = 3,142$$

3.2.2 The Hubble Space Telescope orbits at a speed of  $28\,000 \text{ km/h}$ . Calculate the distance that the Hubble orbits in  $97 \text{ min}$ .

You may use the following formula:  $\text{Distance} = \text{Speed} \times \text{Time}$

3.1.2 Bereken die buite-oppervlakte van die houer ( $\text{in cm}^2$ ) waarna hulle die teleskoop verpak.

Jy mag die volgende formule gebruik:

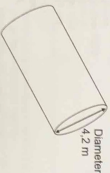
$$BO = 2(\ell \times b) + 2(b \times h) + 2(\ell \times h)$$

3.1.3 Stryf die geometriese vorm van die houer neer.

3.1.4 Die oppervlaktetemperatuur van die planeet Mars is  $-67^\circ\text{F}$ . Herlei  $-67^\circ\text{F}$  na  $^\circ\text{C}$ .

Jy kan die volgende formule gebruik:  $^\circ\text{C} = (^\circ\text{F} - 32) \div 1,8$ .

3.2 Die Hubble Ruimteteleskoop, die grootste ruimteteleskoop ooit gelanseer, het 'n binnervolume van  $184,2538 \text{ m}^3$ . Die teleskoop het 'n diameter van  $4,2 \text{ m}$ .



3.2.1 Bereken die hoogte van die Hubble Ruimteteleskoop. Rond jou antwoord af tot een desimale plek.

Jy mag die volgende formule gebruik:

$$\text{Volume} = \pi \times \text{radius}^2 \times \text{hoogte}$$

$$\pi = 3,142$$

3.2.2 Die Hubble Ruimteteleskoop wend hulle 'n spoed van  $28\,000 \text{ km/h}$ . Bereken die afstand wat die Hubble wend in  $97 \text{ min}$ .

Jy kan die volgende formule gebruik:  $\text{Afstand} = \text{Spoed} \times \text{Tyd}$

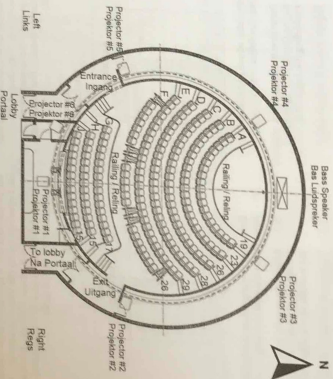
Memo: 50

## Question 4

Vraag 4

4.1 The floor plan below displays the seating plan of the auditorium of a planetarium.

4.1 Die vloerplan hieronder vertoon die sitplekplan van die auditorium van 'n planeetarium.

Seating plan of an auditorium of a planetarium/  
Vloerplan van 'n auditorium van 'n planeetarium

Key / Sleutel: Seat / Stoep, Wheelchair / Wheeler, Stipple / Punt

[Source: www.pinterest.com]

Use the plan and answer the questions that follow.

[Bron: www.pinterest.com]

Gebruik die plan en beantwoord die vrae wat volg.

4.1.1 Which row has the most seats?

(2)

4.1.2 How many projectors are indicated on the auditorium floor plan?

(2)

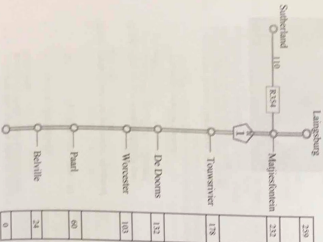
4.1.3 Determine the number of seats in the auditorium.

(2)

Memo: 50

- 4.1.4 Determine the probability that a person will sit in row C if the auditorium is full. (3)
- 4.1.5 In which general direction is seat B2 from H14 if the seats are numbered from left to right? (2)
- 4.1.6 Neil Armstrong's daughter is seated in E27. He is standing at the entrance of the Auditorium. Explain to Neil Armstrong the shortest route to walk to his daughter's seat. (3)

4.2 Buzz Aldrin wants to visit the Planetarium in Sutherland. He travels from the airport in Cape Town to Sutherland. Study the strip map below and answer the questions, that follow.



4.2 Buzz Aldrin wil die Planetarium in Sutherland besoek. Hy reis vanaf die lughawe in Kaapstad na Sutherland. Bestudeer die strookkaart hieronder en beantwoord die vrae wat volg. (3)

- 4.1.4 Bepaal die waarskynlikheid dat 'n persoon in ry C sal sit indien die auditorium vol is. (3)
- 4.1.5 In watter algemene rigting is sitplek B2 vanaf H14 indien die sitplekke genummer is van links na regs? (2)
- 4.1.6 Neil Armstrong se dogter sit op sitplek E27. Hy staan by die ingang van die Auditorium. Verduidelik die kortste roete aan Neil Armstrong om by sy dogter uit te kom. (3)

Source: Compact road atlas from South Africa [from: Kompaske padatlas van Suid-Afrika]

- 4.2.1 Identify the National road Buzz Aldrin will use to travel from Cape Town to Sutherland. (2)
- 4.2.2 State which kind of road the R354 is. (2)
- 4.2.3 Identify the town on the strip map that is 178 km away from Cape Town. (2)
- 4.2.4 Calculate the distance from Cape Town to Sutherland. (3)

- 4.2.1 Identifiseer die Nasionale pad waarop Buzz Aldrin sal reis vanaf Kaapstad na Sutherland. (2)
- 4.2.2 Meld watter tipe pad die R354 is. (2)
- 4.2.3 Identifiseer die dorp op die strookkaart wat 178 km vanaf Kaapstad is. (2)
- 4.2.4 Bereken die afstand vanaf Kaapstad na Sutherland. (3)

## Question 5

The table below represents the results of 26 learners that attended an educational excursion to the Wis Planetarium. They divided the learners into 3 groups. The learners wrote a Galaxy Quiz after the lecture. The quiz results are out of a 120.

Results of Galaxy quiz out of 120/  
Uitslae van die Sonnestelselvrasa uit 120

Aquarius	Scorpiou/ Skerpioen	Gemini/ Tweeling
112	63	108
106	79	102
95	44	87
64	B	32
47	87	91
89	94	75
77	97	87
118	113	103
102		73

## Vraag 5

Die tabel hieronder verteenwoordig die resultate van 26 leerders wat 'n opvoedkundige uitstap na die Wis Planetarium. Hulle het die leerders in 3 groepe verdeel. Die leerders het die Sonnestelsel-vrasa geskryf na die lesing. Die vrasa-uitslae het uit 120 gestel.

- Study the table above and answer the questions that follow.
- 5.1 Determine the lowest mark obtained for the Quiz out of 120 marks, excluding the value of B. (2)
- 5.2 Explain the term median value. (2)
- 5.3 Determine the median of the Aquarius group. (2)
- 5.4 Determine the mode of the results of the Gemini group. (2)
- Bestudeer die boegenoemde tabel en beantwoord die vrae wat volg.
- 5.1 Bepaal die laagste punt verkry in die Sonnestelsel-vrasa uit 120 punte, die waarde van B uitgesluit. (2)
- 5.2 Verduidelik die term median-waarde. (2)
- 5.3 Bepaal die median van die Aquarius-groep. (2)
- 5.4 Bepaal die modus van die resultate van die Tweeling-groep. (2)

5.5 Calculate the mean mark for the Aquarius group. Write your answer as a percentage of the total mark.

5.5 Bereken die gemiddelde punt van die Aquarius-groep. Skryf jou antwoord as 'n persentasie van die totale punt. (5)

5.6 Calculate the value **B** (the highest value) if the range of the data of the Scorpion group is 75.

5.6 Bereken die waarde **B** (die hoogste waarde) indien die variasiewydte van die Skerpioen-groep se data 75 is. (3)

5.7 Study the 5-number summary of the Gemini group below. Calculate the Interquartile Range of the data.

5.7 Bestudeer die 5-syfer opsomming van die Tweeling-groep hieronder. Bereken die Interkwartielvariasiewydte van die data.

Minimum mark/ Minimum punt	Q1/ K1	Q2/ K2	Q3/ K3	Maximum mark/ Maksimum punt
32	74	87	102,5	108

(3)

5.1.8 Determine the number of learners that scored above 60 marks in the Aquarius and Gemini group.

5.1.8 Bepaal die getal leerders wat bokant 60 punte behaal het in die Aquarius en Tweeling-groep. (2)

[21]

[150]