

SESSION 16: PAPER 1 - PROBLEMS

Key Concepts

In this session we will focus on skills you need to complete a paper 1 examination.

X-ample Questions

Question 1

- a) Calculate
- $\frac{4}{5}$ of R180 (1)
 - 30% of R42,90 (1)
 - R340 decreased by 4% (2)
 - 28 expressed as a percentage of 84 (1)
- b) If I exchange R36 and I receive \$3,65, what would I get if I exchanged R90? (2)
- c) An article costing R31,92 includes VAT of 14%. What was the original price of the article before the VAT was added? (3)
- d) Concentrated juice must be mixed in the ratio of 1 part juice to 4 parts water. How much concentrate will you need to make 1 litre of mixed juice? (2)
- e) A restaurant pays a basic salary of R50 a day and then R15 for every hour worked.
- Determine an equation that you could use to work out the salary earned. (2)
 - If Shane worked from 12:30 to 17:00, what salary could he earn? (3)
- f) If the price of bread increased from R4,50 to R5,90, calculate the percentage increase. (2)
- g) A landline rate for a local telephone call is R0,74 for 89 seconds. How much would a call lasting 00:04:27 cost? (3)
- h) Consider the following data which represents the rainfall in the Petra Valley for a particular week:
32mm 12mm 87mm 21mm 64mm 71mm 13mm
- What is the total rainfall for the week? (2)
 - Calculate the daily mean average for this particular week. (2)
 - Determine the range of rainfall that fell. (2)

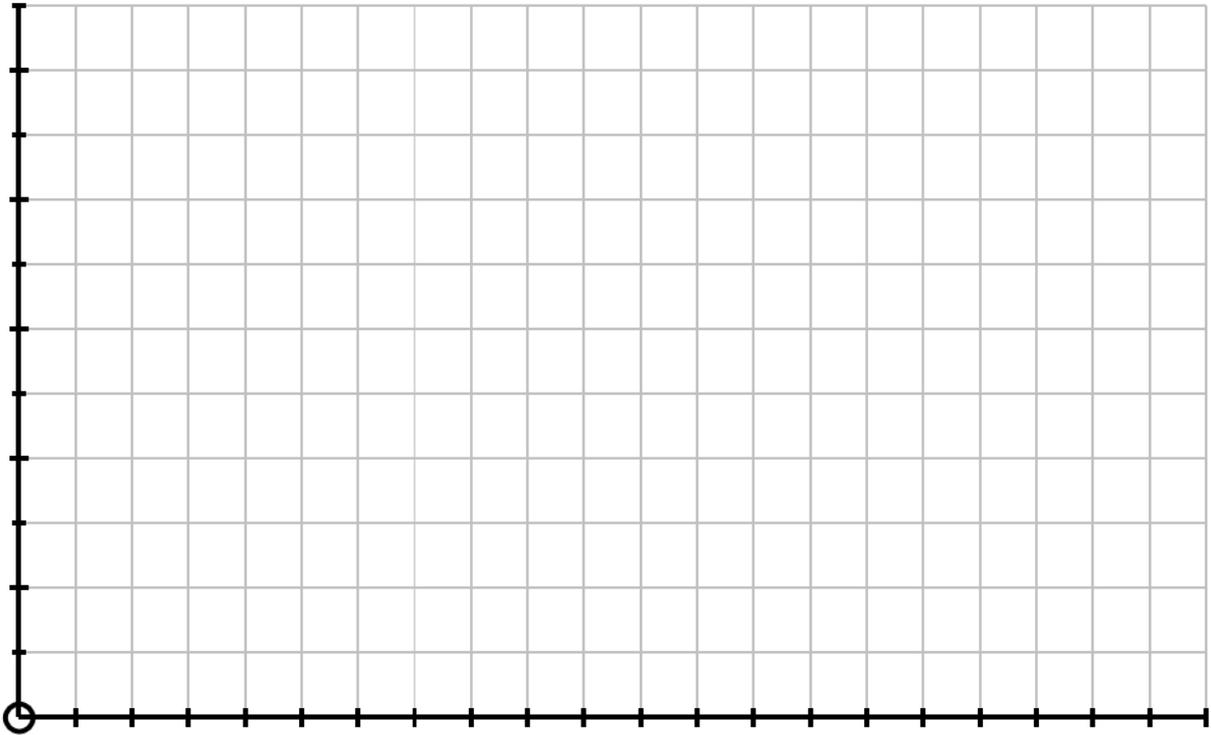
Question 2

The table below gives the approximate distance of a lightning strike, and the time taken between the flash and the thunder.

Time (s)	1	2	3	4	5
Distance (m)	400	a	b	c	2000

- a) Determine the values for **a**, **b** and **c**. (3)

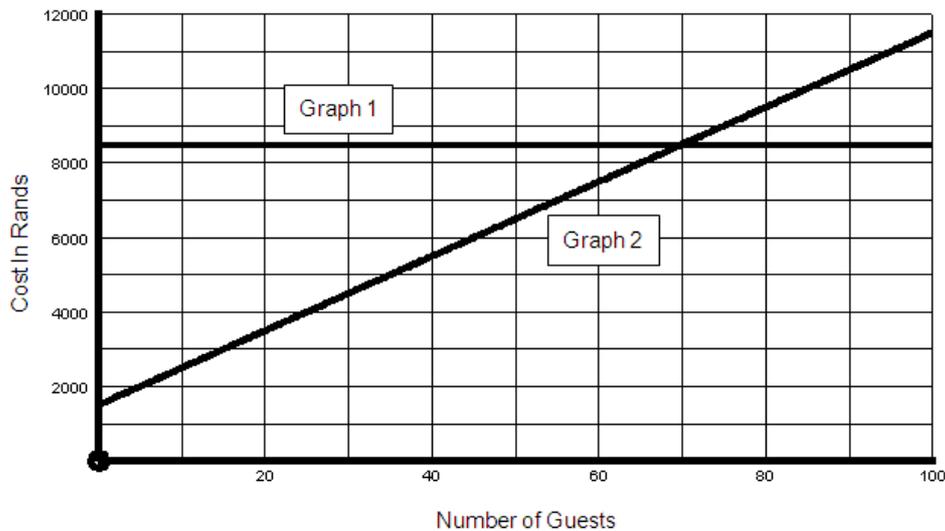
- b) Use the table to draw the graph of the relationship between the time and the approximate distance on the given set of axes below. (5)
- c) Use your graph to answer the following:
 - i) How far away does the lightning strike if the time is 3,5 seconds? (2)
 - ii) If the lightning strikes 1km away, how long does it take before you hear the thunder? (2)



Question 3

It finally happened! Mr. Nkosi eventually found someone who would marry him. There was much to plan. He decided to have his reception at the Bloemfontein Yacht Club which can accommodate 100 guests. He was given the option of two prices to choose from. The first option was to pay R8500 irrespective of the number of guests. The second option was to pay R1500 plus a further R100 per guest.

a) The graphs below are an illustration of the two payment options.



- i) Write down the equation for graph 2. (2)
- ii) Mr. Nkosi decides to invite 90 guests to his wedding.
 - a) Which graph should he consider using? Graph 1 or Graph 2? (1)
 - b) What is the cheapest price he will pay for 90 guests? (1)
- iii) Sadly, Mr. Nkosi only has R7000 to spend on his reception. What is the maximum number of guests he can invite? (1)

b) Mr. Nkosi decided to take one of the photos of his bride and frame it. The photo with the dimensions 180mm x 300mm is placed into a rectangular frame 290mm by 400mm. The inside of the frame is circular in shape, with a radius of 85mm as illustrated below.



What area of the photograph will not be displayed (or hidden by the frame)? Round off your answer to the nearest mm. You will need to use the following formula:

$$\text{Area of rectangle} = l \times b$$

$$\text{Area of circle} = \pi \times r^2$$

(6)

- c) Each table at the reception will be 2,5metres long and 100 centimetres wide. The tables are 850mm high. The bride wants each table cloth to cover the tables and to hang in such a way that they just touch the floor on all four sides.
- What area should the table cloth be? (Give your answer in m^2). (4)
 - If the material needed for these table cloths costs R62,45 per square meter, then determine the total cost for the table cloths if there are 7 tables. (3)
 - Once the table cloth has been placed on the table, the corner pieces will need to be folded over.

A		B
C		D

Calculate the total area of all 4 corner pieces, A, B, C and D. Give your answer to the nearest m^2 . (3)

Question 4

Tando and Neo are both good swimmers and are hoping to qualify for the 100 m freestyle event at the Commonwealth Games. The Commonwealth Games qualifying time for the 100 m freestyle is 49,23 seconds.

A swimmer has to swim faster than the Commonwealth Games qualifying time in order to qualify to swim in the Olympic Games.

Tando and Neo have the same coach and swim every morning and every evening. Their coach times their 100 m freestyle regularly as shown in the table below.

Tando's times are arranged in ascending order.

Time (in seconds) taken to swim 100 m freestyle

Tando	49,21	49,28	50,12	50,48	50,48	51,24	51,48	52,24	52,54
Neo	49,20	51,24	51,24	50,58	50,26	49,21	50,56	52,56	

- Determine the percentage of the recorded times for the 100 m freestyle that Tando swam in 49,23 seconds or less. Round off the answer to TWO decimal places. (3)
- Write down Tando's **median** time. (1)
- Determine the **range** of Tando's times. (2)
- Write down Neo's **median** time. (3)
- Determine the **mode** of Neo's times. (1)
- Determine the **mean** of Neo's times, rounded off to TWO decimal places. (3)
- Use Neo's times for her eight time trials to determine the probability that her next time trial will be less than 49,23 seconds. (2)

X-ercise

Question 1

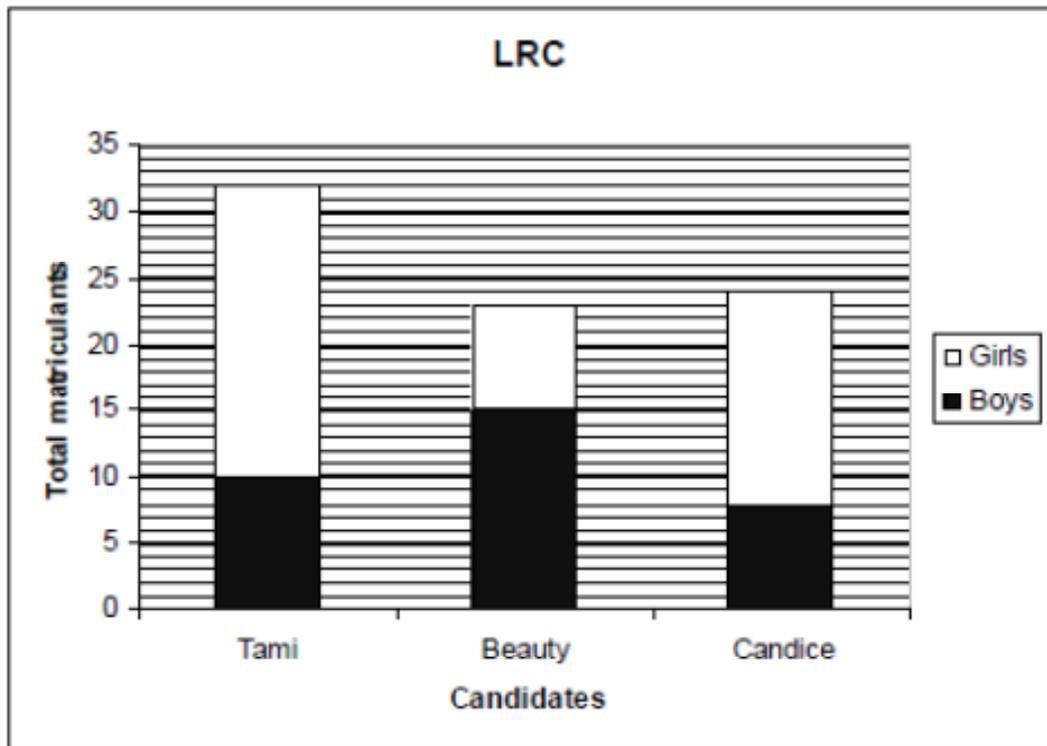
- a) Do the following calculations:
- i) Increase 85kg by 4%. (2)
 - ii) Kelli purchased a hand bag for R342 including VAT (14%). What was the original cost of the handbag excluding VAT? (3)
 - iii) How many minutes are there in 2,4 hours? (2)
 - iv) Write the ratio 168:120 in its simplest form. (1)
- b) From the R12 500 salary that is earned, a certain employee spends R5 250 on rent. What percentage of the salary is **NOT** spent on rent? (3)
- c) A fudge making company usually buys 75kg of sugar for every 50kg of butter they buy. Owing to the current demand for fudge they need to buy 125kg of sugar. How much butter will they need to order if the ratio of sugar to butter remains the same? Round off your final answer to the nearest kilogram. (3)
- d) Consider the following:

$$C = 2 \times \pi \times r$$

Where C = circumference (outer perimeter)

r = radius of a circle

- Determine the radius of a circle (to the nearest mm) if the circumference is 282,75mm. (3)
- e) The grade 11 learners had an election to select their candidates for LRC for 2012. The following graph is the result of the survey:



- i) Which learner received the most votes? (1)
- ii) How many girls voted for Tami? (1)
- iii) How many boys voted for Tami? (1)
- iv) Which candidate received the least votes? (1)
- v) Calculate how many grade 11s participated in the election. (2)