# HILLCREST HIGH SCHOOL

## Grade 12 Mathematical Literacy Exam
## Paper 1
## May 2014

Name: _____

MARKS: 100 TIME: 2 hours

INSTRUCTIONS

1. This question paper consists of 4 questions. Answer ALL the questions.
2. Number the questions correctly according to the number system used in this question paper.
3. Start EACH question on a NEW page.
4. You may use an approved calculator (non-programmable and non-graphical), unless stated otherwise.
5. Show ALL calculations clearly.
6. Round off ALL final answers to TWO decimal places, unless stated otherwise.
7. Indicate units of measurement, where applicable.
8. Maps and diagrams are NOT necessarily drawn to scale, unless otherwise stated.
9. Write neatly and legibly.

QUESTION 1

1.1 A recent soccer clinic drew 2 600 entrants for the first try out.

1.1.1 Half of the entrants were disqualified because they were not in the age group 13-15 years old. One in five of the remainder made it to the second day of the clinic. How many people were at the second day of the clinic? (3)

1.1.2 Each person on the second day was given a 350 ml bottle of Coca Cola. How many litres of Coca Cola was this in total? (3)

1.1.3 The Coca Cola bottles were packed in crates with 12 bottles in each layer and two layers of bottles. How many crates were needed? (3)

1.1.4 Finally, 100 people were chosen to go through for long-term coaching. What percentage of the original number of entrants does this represent? (3)

1.2 The table below shows the results from the premier Soccer League for 2006.

| | **Played** | **Won** | **Drawn** | **Lost** | **Goals For** | **Goals Against** | **Goal Diff.** | **Points** |
|---|---|---|---|---|---|---|---|---|
| Mamelodi Sundowns | 30 | 16 | 9 | 5 | 45 | 19 | +26 | 57 |
| Orlando Pirates | 30 | **A** | 12 | 4 | 39 | 24 | +15 | 54 |
| Kaizer Chiefs | 30 | 12 | 14 | 4 | 39 | 26 | +13 | 50 |
| Moroka Swallows | 30 | 12 | 10 | 8 | 39 | 33 | **B** | 46 |
| Silver Stars | 30 | 11 | 9 | 10 | 34 | 32 | +2 | 42 |
| Golden Arrows | 30 | 9 | 13 | 8 | 32 | **C** | +4 | 40 |
| Supersport Utd | 30 | 10 | 10 | 10 | 43 | 41 | +2 | 40 |
| Santos | 30 | 7 | 17 | 6 | 35 | 32 | +3 | 38 |
| Jomo Cosmos | 30 | 10 | 8 | 12 | 31 | 32 | -1 | 38 |
| Bloemfontein Celtic | 30 | 9 | 10 | 11 | 35 | 37 | -2 | 37 |
| Ajax Cape Town | 30 | 8 | 11 | 11 | **D** | 42 | -2 | 35 |
| Black Leopards | 30 | 9 | 7 | 14 | 31 | 39 | -8 | 34 |
| Dynamos | 30 | 7 | 10 | 13 | 24 | 38 | -14 | 31 |
| Tembisa Classic | 30 | 7 | 9 | 14 | 23 | 37 | -14 | * |
| Bush Bucks | 30 | 6 | 12 | 12 | 25 | 48 | -23 | 30 |
| Free State Stars | 30 | 4 | 17 | 9 | 34 | 41 | -7 | 29 |
| Last Updated: 13 May 2006 (source: www.psl.co.za) | | | | | | | | |

1.2.1 How many games did each team play in the season? (2)

1.2.2 What is the significance of the + and the – symbols in the Goal Difference column? (2)

1.2.3 Some of the results have been replaced by the letters A, B, C and D. Determine what values should be in each of these places. (4)

1.2.4 The fans of the Free State Stars are disappointed that their team came last, because they only lost 9 games out of 30 played. The top team Mamelodi Sundowns, lost 5 games out of 30. Explain why there is such a great difference in points for the two teams. (2)

1.2.5 Calculate the final points for Thembisa Classic if a team earns 3 points for a win; 1 point for a draw; and no points for a loss. (3)

[25]

QUESTION 2

Mulalo Mlaudzi is a Grade 12 learner who makes extra money by baking and selling doughnuts once a week. She spends an initial cost of R60 on electricity and transport. The cost price for ingredients is R2 per doughnut. She sells each doughnut with a mark-up of 150% on the cost price.

2.1 Show that the selling price of a doughnut is R5. (3)

2.2 Table 1 shows the cost for the number of doughnuts as indicated.
Work out the values of A to D. (4)

Table 1

| Number of doughnuts | 0 | 10 | 20 | 40 | 60 | 80 |
|---|---|---|---|---|---|---|
| Expense in Rands | 60 | 80 | A | B | C | D |

2.3 Table 2 shows the income received for the number of doughnuts as indicated.
Calculate the values of P to S. (4)

Table 2

| Number of doughnuts | 0 | 10 | 20 | 40 | 60 | 80 |
|---|---|---|---|---|---|---|
| Income in Rands | 0 | P | Q | 200 | R | S |

2.4 Use the information in table 1 and 2 to draw the following graphs on the same set of axes on graph paper on Annexure A.
Graph A: use the information in table 1
Graph B: use the information in table 2. (4)

2.5 Using the table, how many doughnuts must be sold before Mulalo makes a profit? (2)

2.6 Describe how the graph can be used to find the solution to question 2.5. (2)

2.7 Mulalo sold 68 doughnuts last week. How much profit did she make? (3)

2.8 Draw up an income and expense statement for the sale of 68 doughnuts. (3)

[25]

QUESTION 3

3.1 Mr Smith has to give a quote to Mrs Gwele for a new worktop in her kitchen.
It has the shape (made up of a rectangle and a semi circle) as shown in the drawing (not drawn to scale). It is attached to a wall along the shortest straight side and projects into the room. Use $\pi = 3{,}14$ in all calculations. Round off all costs to the nearest Rand.

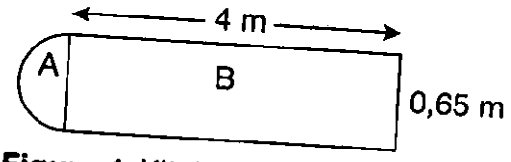


**Figure 1** Kitchen top

3.1.1 What is the length of the radius of the semicircle? (1)

3.1.2 What is the length of the two straight sides and the curved side of the worktop? (Circumference of a circle = 2 x π x radius) (3)

3.1.3 Calculate the cost of the edging if it costs R14,96/metre and is sold only in multiples of half a metre. (2)

3.1.4 Determine the area of the worktop. Use the formula:
Area = length x breadth + $\frac{\Pi \times radius^2}{2}$. (3)

3.1.5 What will be the cost of the veneer for the worktop at R269,59 per $m^2$? (3)

3.2 Mr Smith has two labourers who each work 7 hours at R70 per hour. What will the cost of the labour be? (2)

3.3 Calculate the cost of the material and the labour altogether. (2)

3.4 Mr Smith adds 57% to cover his business and profit. What amount will he add to the quotation? (2)

3.5 What is the final amount of Mrs Gwele's quotation? (2)

[20]

QUESTION 4

4.1 The ages of 12 passengers (in years) in a taxi are as follows:
1 9 13 21 23 23 23 29 38 39 63 71

4.1.1 What is the range of ages? (2)

4.1.2 What is the modal age of the passengers? (2)

4.1.3 Determine the mean ages of the passengers. (3)

4.1.4 What is the probability that a passenger selected at random will be 21 years old? (2)

4.2 Sandile makes concrete by mixing cement, sand and gravel in the ratio 1 : 2 : 4.

4.2.1 Suppose Sandile uses 12 kg of cement. What mass of sand would he need? (2)

4.2.2 Sandile makes 105 kg of concrete. Determine the mass of gravel in the mixture. (3)

4.2.3 Cement costs R56,50 per bag. If Sandile uses 45 bags in a month, what will his total cost be? (2)

4.2.4 If Sandile buys 50 bags of cement, he gets a discount and this total cost is R2 768,50.
a. Work out the cost per bag. (2)
b. What percentage discount did he get? (3)

4.2 The following table appeared in a report on the 2011 National Census.
The table shows the percentage of individuals aged 5 – 24 years who attend private and public institutions.

| | 2001 | 2011 |
|---|---|---|
| Private | 5,1% | 7,3% |
| Public (government) | 94,6% | 92,7% |

The total population of four different age groups in South Africa in 2011 is given below.

| Age | Population |
|---|---|
| 5-9 | 5 304 049 |
| 10-14 | 5 318 091 |
| 15-19 | 5 175 488 |
| 20-24 | 4 900 375 |

Source: Stats SA

4.3.1 What percentage of individuals attended government schools in 2001? (2)

4.3.2 How did this figure change from 2001 to 2011? (2)

4.3.3 Use the figures in the table to calculate the total population for the age group 5-24. (2)

4.3.4 The graph shows that 7,3% of people in this age group attend private institutions. How many people is this? (3)
[30]