



Province of the
EASTERN CAPE
EDUCATION

**NATIONAL
SENIOR CERTIFICATE**

GRADE 12

JUNE 2017

MATHEMATICAL LITERACY P2

MARKS: 100

TIME: 2 hours



This question paper consists of 7 pages and a 6-page ADDENDUM.

INSTRUCTIONS AND INFORMATION

Read the following instructions carefully before answering the questions.

1. This question paper consists of FOUR questions. Answer ALL the questions.
2. Use the ADDENDUM with ANNEXURES for the following questions:

ANNEXURE A for QUESTION 1.1
ANNEXURE B for QUESTION 2.1
ANNEXURE C for QUESTION 3.1
ANNEXURE D for QUESTION 3.2
ANNEXURE E for QUESTION 4
3. Number the questions correctly according to the numbering system used in this question paper.
4. Start EACH question on a NEW page.
5. An approved calculator (non-programmable and non-graphical) may be used, unless stated otherwise.
6. ALL calculations must be shown clearly.
7. Round off ALL final answers appropriately accordingly to the given context, unless stated otherwise.
8. Indicate units of measurement, where applicable.
9. Maps and diagrams are NOT drawn to scale, unless stated otherwise.
10. Write neatly and legibly.

QUESTION 1

- 1.1 South Bay High School is in desperate need for a new photocopying machine. The School Governing Body (SGB) decided to do some research in order to find the best possible and the most cost effective photocopying machine contract.

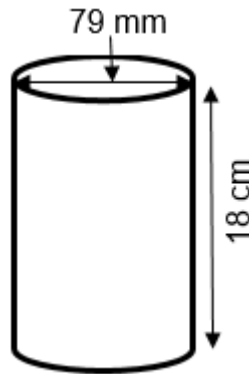
Study the graph (Annexure A) in the ADDENDUM to answer the questions that follow:

- 1.1.1 Briefly explain why none of the graphs start at the origin. (2)
- 1.1.2 Give a reason why the graphs have a straight line that is constant from zero up to a certain point. (2)
- 1.1.3 Calculate the cost of making ONE copy using Company A. (4)
- 1.1.4 Write down a formula to describe the cost involved for making copies using Company B. (3)
- 1.1.5 Explain the significance of the points where the graphs intersect one another. (2)
- 1.1.6 Write down the values of the intersection point for Company A and C. (2)
- 1.1.7 Which company provides the most cost effective option if the school makes more than 2 000 but less than 4 000 copies per month? (2)
- 1.1.8 Write down the minimum number of photocopies per month for Company C to be the most cost effective option if the school makes more than 4 000 copies per month. (2)

1.2

In the Creative Arts classroom, the teacher keeps coloured pencils in three identical cylindrical containers. These pencils remain unsharpened until they are used or lost. Below is a diagram that shows the cylindrical container. (Diagram not drawn to scale).

The height of the container is 18 cm and the diameter 79 mm.



1.2.1 If the diameter of one coloured pencil is 7 mm and the length 17,5 cm, calculate how many coloured pencils can fit into the THREE containers. (8)

1.2.2 The teacher packs some of the coloured pencils as follow in each of the containers; 3 red, 2 blue, 2 green and 3 orange. Calculate the probability that if a pencil is taken from ALL the containers, it will be a red pencil. Give your answer to three decimal places. (3)

[30]

QUESTION 2

- 2.1 Refer to the Growth Chart for boys with Down syndrome, ages 2 to 18 years (ANNEXURE B) in the ADDENDUM to answer the questions that follow:

- 2.1.1 Explain what it means if a 12-year-old boy has a height-for-age ratio that puts him on the 50th percentile. (2)
- 2.1.2 A 10-year-old boy is 47 inches tall. Does this boy have an above average, average or below average height-for-age-ratio? (2)
- 2.1.3 According to the growth chart, between what ages does the height of boys increase the fastest? Refer to the percentile curves in your answer. (2)
- 2.1.4 A claim is made that a boy who is 1,27 m tall, is 15 years old. Verify, showing all calculations, whether this claim is valid or not.

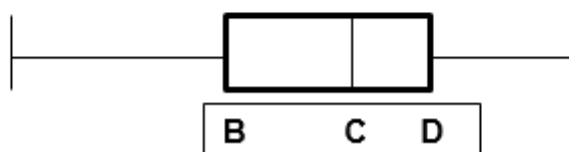
You may use the following:

$$1 \text{ inch} = 2,54 \text{ cm} \quad (5)$$

- 2.1.5 Why do you think this growth chart does not include all boys? (2)

- 2.2 At a special school for learners with special needs, the data below show the arranged ages of girls with Down syndrome and a corresponding box-and-whisker plot.

8 9 9 9 9 10 10 11 11 12 12 12
 13 13 13 14 14 14 15 15 15 16 16 16
 16 16 16 16 16 17 17 17 17 18 18 **A**



- 2.2.1 Determine the missing value A if the range of the ages of girls with Down Syndrome in the school is 11 years. (2)
- 2.2.2 Calculate the mean age of the girls with Down syndrome in this school. (3)
- 2.2.3 Calculate the missing quartile values **B**, **C** and **D** of the box-and-whisker plot. (5)
- 2.2.4 If a girl with Down Syndrome is randomly chosen at this school, determine the probability that this girl is not 16 years or younger. (2)

[25]

QUESTION 3

- 3.1 Reward High School is a private school that hosts 1 300 learners in different phases (Foundation-, Intermediate-, Senior- and FET phases). Refer to the table in ANNEXURE C that shows the tuition fees, boarding fees and the number of learners per grade for Reward High School for 2017. Study the table and answer the questions that follow. Some of the values have been omitted.

3.1.1 The amount of R3 651 for Grade 000 has been rounded to a whole number. Explain with the necessary calculations what the implication of rounding to a whole number will have on the annual amount. (4)

3.1.2 Ms Hugh has 3 children attending Reward High School, one in Grade 3, one in Grade 7 and one in Grade 11. She decided to pay the fee as follows:

Grade 3 learner per term;
Grade 7 learner per month and
Grade 11 learner on 26th January 2017.

Calculate the total amount Ms Hugh paid for her 3 children at the end of the first term of the 2017 school year.

Note: The children do not stay in the boarding school. (11)

3.1.3 Why do you think are the school fees of a Private school is so much higher than that of Public schools? Give ONE reason. (2)

- 3.2 Reward High School have gazebo's for their learners in extreme weather conditions, such as heat. ANNEXURE D shows how a gazebo is assembled. Study the diagram and answer the questions that follow.

3.2.1 Determine how many parts are needed to assemble the gazebo. (3)

3.2.2 Explain briefly how you would assemble the gazebo. (6)

3.2.3 One of the instructions on the page reads: "Not suitable for children under the age of 3 years old". Explain why this instruction is given. (2)

[28]

QUESTION 4

Refer to the ground plan of the Old Trafford football field in ANNEXURE E of the ADDENDUM. **Old Trafford** is a football stadium in Old Trafford, Greater Manchester, England, and the home of Manchester United.

- 4.1 The capacity of the Old Trafford football stadium increased by 25,59% to its current capacity of 95 000. This increase was due to the expansions that were made at the stadium. Determine what the stadium's capacity was before the expansions. (4)
- 4.2 From which stands will spectators have the best view to watch a match? Give a reason for your answer. (4)
- 4.3 Why do you think the area marked X is a designated area? (2)
- 4.4 The pitch has a grass area. The centre of the pitch is 9 inches higher than that of the edges. Why do you think the centre of the pitch is higher than the edges of the pitch? (2)
- 4.5 The pitch area is approximately 115 yards long and 74 yards wide. Show with calculations that the area of the pitch is approximately 7 140 m².

You may use the following:

100 yards = 91,44 metres

Area = Length x Width

(5)
[17]

TOTAL: 100

