ELIMU254 TOPICAL REVISION

Kenya CBC | Junior School | Grade 9

Name		**Class**	
School		**Year**	

TOPICAL REVISION QUESTIONS

GRADE 9: MATHEMATICS: ALL STRANDS

174 questions in 19 exercises, with all the answers at the back

HOW TO USE THIS BOOK

1. Each subject follows the KICD curriculum design strand by strand. There is one exercise for every sub-strand, in the order it is taught.
2. Do an exercise after the sub-strand is taught, for revision before a test, or as homework and holiday work.
3. Answer in the spaces provided. For a multiple-choice question, circle the letter (A, B, C or D) of the correct answer.
4. The marks for each question are shown in brackets. Show your working where a question needs it.
5. The answers for every exercise are at the back of the book, subject by subject, for the teacher or parent to mark.

SUBJECTS IN THIS BOOK

Subject	Exercises	Questions
Mathematics	19	174

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MATHEMATICS

Revision questions

NUMBERS

Exercise 1: Integers (16 marks)

1. (-7) - (-12) = (1 mark)

A (-19) **B** 5

C (-5) **D** 19

2. (-48) ÷ 6 × (-2) = (1 mark)

A (-16) **B** 4

C (-4) **D** 16

3. At 6 a.m. it is (-5) °C. By noon it is 9 °C. The rise is: (1 mark)

A 14 °C **B** 4 °C

C (-14) °C **D** 45 °C

4. Work out:

(a) (-8) + 15 - (-6) (1 mark)

(b) (-4) × (-5) × (-2) (1 mark)

(c) (-36) ÷ 4 - (-3) × 5 (2 marks)

5. The temperature in Nairobi is 18 °C and inside a freezer it is (-12) °C. Find the difference in temperature. (2 marks)

6. A diver is at (-24) m. She rises 9 m and then goes down 15 m. Where is she now? (2 marks)

7. A shopkeeper made a loss of 450 shillings on Monday, a profit of 1,200 shillings on Tuesday and a loss of 300 shillings on Wednesday. Using integers, find the overall result. (2 marks)

CHALLENGE: harder questions to stretch the best learners

8. Work out -12 ÷ (-3) × 2 - (-5) × (-2). (1 mark)

A -2 **B** 18

C -18 **D** 2

9. A diver is 18 m below the surface. She rises 7 m a minute for 2 minutes, then dives down 11 m. How far below the surface is she now? (2 marks)

Exercise 2: Cubes and cube roots (18 marks)

1. The cube of 0.3 is: (1 mark)

A 0.9 **B** 0.09

C 0.027 **D** 0.27

2. The cube root of 216 is: (1 mark)

A 6 **B** 8

C 36 **D** 72

3. The cube root of 50 lies between: (1 mark)

A 2 and 3 **B** 4 and 5

C 5 and 6 **D** 3 and 4

4. Work out (a) 1.5^3 (b) $(-0.2)^3$ (2 marks)

5. Use prime factors to find the cube root of 3,375. (3 marks)

6. A cube has a volume of 1,728 cm^3. Find (a) the length of one edge (b) its total surface area. (3 marks)

7. A cube-shaped water tank has edges of 1.5 m. How many litres of water can it hold? (2 marks)

8. Find the cube root of 0.027. (1 mark)

CHALLENGE: harder questions to stretch the best learners

9. A cube has a volume of 1,728 cm³. What is its total surface area? (1 mark)

A 144 cm² **B** 864 cm²

C 1,728 cm² **D** 72 cm²

10. Find the cube root of 3,375 by the factor method. (3 marks)

Exercise 3: Indices and logarithms (17 marks)

1. a^7 ÷ a^3 = (1 mark)

A a^10 **B** a^21

C a^(7/3) **D** a^4

2. 2^(-3) = (1 mark)

A (-6) **B** 1/8

C (-8) **D** 1/6

3. If 10^x = 1,000, then x = (1 mark)

A 100 **B** 30

C 3 **D** 4

4. Simplify and evaluate (2^3 × 2^5) ÷ 2^4. (2 marks)

5. Evaluate (a) 5^0 (b) 3^(-2) (c) 10^(-2) (3 marks)

6. Solve 3^(x + 1) = 81. (2 marks)

7. Without tables, write down (a) log 10,000 (b) log 0.01 (2 marks)

8. Given that log 3.5 = 0.5441, write down log 350 and log 35,000. (2 marks)

CHALLENGE: harder questions to stretch the best learners

9. If 10 to the power x = 0.001, then x = (1 mark)

A 3 **B** -3

C 1/3 **D** -1/3

10. Solve 3 to the power (2x - 1) = 27. (2 marks)

Exercise 4: Compound proportions and rates of work (20 marks)

1. 350 shillings shared in the ratio 3 : 4 gives the larger share: (1 mark)

A 200 **B** 150

C 250 **D** 100

2. 5 learners clean a hall in 6 hours. At the same rate, 10 learners take: (1 mark)

A 12 hours **B** 6 hours

C 3 hours **D** 2 hours

3. A tap fills a tank in 4 hours. In 1 hour it fills: (1 mark)

A 4 tanks **B** ¼ of the tank

C ½ of the tank **D** ¾ of the tank

4. Share 36,000 shillings among Akinyi, Baraka and Chebet in the ratio 2 : 3 : 4. (3 marks)

5. A price of 1,200 shillings is increased in the ratio 5 : 4. Find the new price. (2 marks)

6. 6 workers working 8 hours a day take 10 days to plaster a building. How many days would 4 workers working 6 hours a day take? (3 marks)

7. Pipe A fills a tank in 3 hours and pipe B fills it in 6 hours. How long do both pipes take to fill the tank together? (3 marks)

8. 8 workers can build a wall in 15 days. How many workers are needed to build it in 10 days? (2 marks)

CHALLENGE: harder questions to stretch the best learners

9. Pipe A fills a tank in 6 hours and pipe B fills it in 3 hours. How long do they take to fill it TOGETHER? (1 mark)

A 4.5 hours **B** 2 hours

C 9 hours **D** 3 hours

10. 8 men working 6 hours a day take 15 days to dig a trench. How many days would 12 men working 5 hours a day take to dig the same trench? (3 marks)

ALGEBRA

Exercise 5: Matrices (20 marks)

1. The order of [1 2 3 ; 4 5 6] is: (1 mark)

A 3 × 2 **B** 2 × 3

C 6 × 1 **D** 2 × 2

2. [3 1] + [2 (-4)] = (1 mark)

A [1 5] **B** [5 5]

C [6 (-4)] **D** [5 (-3)]

3. Two matrices can be added only if they: (1 mark)

A have the same order **B** are both square

C have the same elements **D** have one row each

4. For the matrix [2 0 5 ; 1 4 3], state (a) its order (b) the element in row 2, column 3. (2 marks)

5. Work out (a) [5 (-2) ; 3 0] + [(-1) 4 ; 2 6] (b) [7 3 ; 1 (-4)] - [2 5 ; (-3) 1] (4 marks)

6. Two shops sold rice and sugar (in kg) as follows.
Week 1: Shop P rice 20, sugar 15; Shop Q rice 12, sugar 18.
Week 2: Shop P rice 25, sugar 10; Shop Q rice 14, sugar 20.

(a) Write the sales for each week as a 2 × 2 matrix (rows: shops, columns: rice, sugar). (2 marks)

(b) Find the total sales matrix for the two weeks. (1 mark)

(c) Find Week 2 minus Week 1 and say what the negative element means. (2 marks)

7. Find x and y if [x 3 ; 2 5] + [4 y ; 1 0] = [9 7 ; 3 5]. (2 marks)

CHALLENGE: harder questions to stretch the best learners

8. A matrix of order 2 × 3 can be ADDED to a matrix of order (1 mark)

A 3 × 2 **B** 2 × 3

C 2 × 2 **D** 3 × 3

9. Shops P and Q sell loaves of bread and packets of milk. Week 1 sales: P 40 bread, 25 milk; Q 32 bread, 18 milk. Week 2 sales: P 35 bread, 30 milk; Q 28 bread, 22 milk.

(a) Write each week as a 2 × 2 matrix (rows P, Q; columns bread, milk) and add them. (2 marks)

(b) How many more packets of milk did P sell than Q over the two weeks? (1 mark)