GAUTENG PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

GAUTENG DEPARTMENT OF EDUCATION

GRADE 9

NOVEMBER COMMON EXAMINATION 2014

SUBJECT	**:**	**MATHEMATICS**
TASK	**:**	**COMMON EXAMINATION**
TIME	**:**	**2 HOURS**
MARKS	**:**	**120**

This assessment task consists of 13 pages

INSTRUCTIONS

1. This Question Paper has two sections, Section A and Section B.

2. **SECTION A** has ten multiple questions. Answer this section on the answer sheet provided. Four possible answers are given. Circle the letter (A - D) of next to the correct answer.

3. **SECTION B** has 6 Questions. Answer ALL Questions.

4. A non-programmable calculator may be used unless otherwise stated.

5. Show ALL your work. (**SECTION B**)

6. Answer sheets for Questions 1; 6.1; 9.1, and 9.2.1 are provided. (**See the Annexure A, B and C). These sheets must be handed in with your answer book.**

SECTION A

This section has 10 multiple choice questions. Four possible answers are given. Circle the letter (A - D) next to the correct answer. Answer this section on the answer sheet provided.

QUESTION 1

1.1 Three sisters shared R500 and divided it into R250. R150 and R100. In which the ratio is divided?

A. 3: 2: 1
B. 5: 3: 2
C. 5:4:3
D. $\frac{1}{2}$:3 :1 (2)

1.2 Which one of the following is NOT a prime number?

A. 23
B. 11
C. 2
D. 1 (2)

1.3 Arrange the following numbers in ascending order:

-135; 45; -139; 77; 0; -220

A. 77; 45; 0; -135; -139; -220
B. -135; -139; -220; 0; 77; 45
C. -220; -139; -135; 0; 45; 77
D. 0; 45; 77; -135; -139; -220 (2)

1.4 The LCM of 8; 12 and 20 is:

A. 120
B. 80
C. 2
D. 4 (2)

1.5 The value of the constant term in $2x^3 - 5x^2 + 3x - 9$ is:

A. -2
B. 9
C. -9
D. 5 (2)

1.6 20 learners wrote a math test and their results in percentage were as follows:

30; 22; 45; 44; 29; 59; 46; 61; 29; 56; 62; 35; 53; 35; 51; 26; 68; 86; 72; 64

The range is:

A. 64
B. 108
C. 57
D. 34 (2)

1.7 The factors of $p^4 - 1$ are:

A. $(p^2 - 1)(p^2 - 1)$
B. $(p - 1)(p + 1)$
C. $(p - 1)(p + 1)(p^2 - 1)$
D. $(p - 1)(p + 1)(p^2 + 1)$ (2)

1.8 Simplify: $4^{-2} + \left(\frac{1}{4}\right)^{-1}$

A. $4\frac{1}{16}$
B. 8
C. $2\frac{1}{4}$
D. 1 (2)

1.9 Solve for x: $\frac{x}{4} - \frac{x}{5} = 3$

A $\frac{60}{9}$
B. 20
C. 60
D. $\frac{60}{20}$ (2)

1.10 Simplify: $\sqrt{x^3}$

A x

B $\frac{x^3}{2}$ (2)

C Undefined number

D $x\sqrt{x}$

[20]

SECTION B

QUESTION 2

2.1 Simplify the following:

$5m^2np \times mn^2p^2 - 3m^3n^3p^3 \times (4mnp)^0$ (4)

2.2 Calculate the following without a calculator:

2.2.1 $\left(2\frac{1}{2}\right)^2 + (0,5)^2$ (3)

2.2.2 $\sqrt{\frac{0,08}{0,64} \times \sqrt{64}}$ (3)

2.3 If 6 gardeners can mow the grass of a soccer field in 2 hours, how many gardeners can mow the same soccer field in 3 hours? (2)

2.4

$$i = \frac{r}{100} \qquad A = P(1+i.n) \qquad A = P(1+i)^n$$

Miss Lee needs to draw up a budget of her monthly expenses. She earns R8 900 per month. Her bills in one month are: Rent: R2 100, Electricity R300, Car payments R 1 450, Insurance R370, Petrol R600 Clothing account repayment R655 and Groceries R1 350.

2.4.1 What are her total expenses for one month? (1)

2.4.2 How much money does she have left after paying all her expenses? (1)

2.4.3 She borrows money from the bank to fix her car. Calculate the simple interest on a R5 000 loan for 3 years at 8Type equation here.,5% interest. (3)

2.4.4 Her grandparents gives her R15 000 for her 21st birthday. Calculate the compound interest earned over 2years at 12% p.a. interest. (4)

[21]

QUESTION 3

3.1 Simplify the following expression

3.1.1 Add: $-4x + 6 + 11x - 5$ (2)

3.1.2 Multiply: $3(x - 1) - 4(x - 2)$ (3)

3.1.3 Calculate the value of $2x^2 - 4$ if $x = 3$ (2)

3.2 Simplify the following:

3.2.1 $\dfrac{(5x)^3y \times (2xy^2)^2}{15x^5y^2}$ (3)

3.2.2 $\dfrac{2x + 4y}{x + 2y}$ (2)

3.3 Factorise fully:

3.3.1 $x^2 - x - 6$ (2)

3.3.2 $18x^2 - 200$ (2)

[16]

QUESTION 4

4.1 Solve the following equations:

4.1.1 $3(x + 1) = 8x - 2$ (2)

4.1.2 $\dfrac{x + 7}{4} + \dfrac{3x - 1}{3} = 0$ (3)

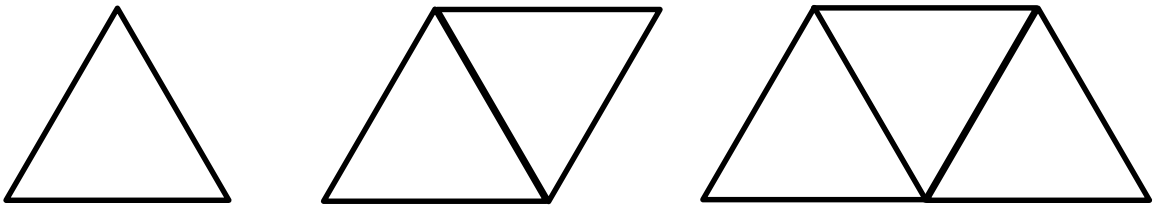
4.2 Solve for x and y:

$x + 3y = 6 \ldots . (1)$ (4)

$-x + 8y = 5 \ldots \ldots . (2)$

[9]

QUESTION 5



Pattern 1 Pattern 2 Pattern 3

5.1 Copy the table and complete the table by writing down a pattern representing the number of sticks that makes each pattern:

Pattern	1	2	3	4	5	6
Number of sticks						

(3)

5.2 Describe the pattern in your own words. (1)

5.3 Write down the general term of the given sequence in the form:
T_n= _____ (2)

5.4 Without drawing the figures determine the number of sticks needed to build the 17^{th} figure (2)

[8]

QUESTION 6

6.1 On the grid (**ANNEXURE B)** plot the following two points and then join them.

6.1.1 (-3 ; 4) (1)

6.1.2 (2 ; -1) (1)

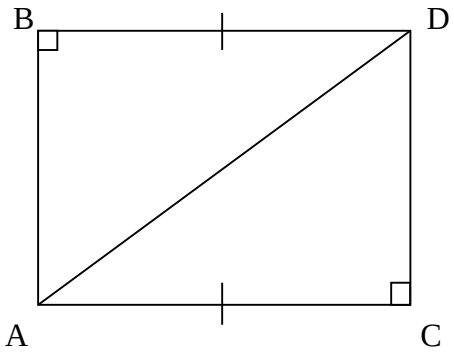
6.2 Determine the gradient of the line (2)

6.3 Determine the equation of the line in the form$y = mx + c$ (2)

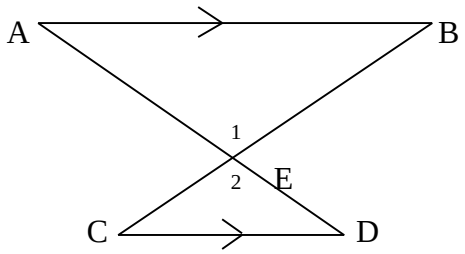
[6]

QUESTION 7

7.1 Prove with reasons that Δ FGH is congruent to Δ GHJ (4)



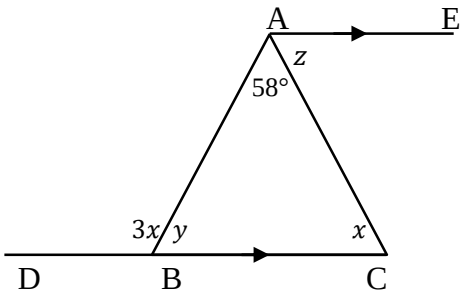
7.2 Prove with reasons that Δ ABE is simillar to Δ DCE (4)



[8]

QUESTION 8

Study the following diagram and answer the questions that follows:



AE||DC

8.1 Determine , with reasons without using a protractor, the size of:

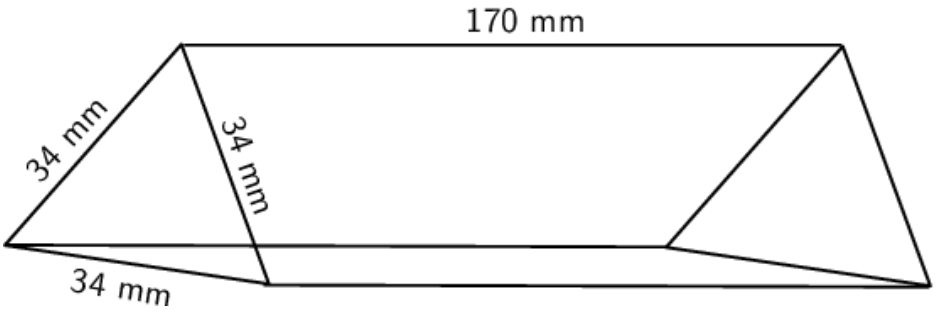
8.1.1 x (3)

8.1.2 y (2)

8.1.3 z (2)

8.2 Calculate the area of a rectangular carpet if the width is 8m and the diagonal measures 10m. (3)

8.3 Given the diagram below, answer the following questions:



8.3.1 Identify the figure represented above. (1)

8.3.2 Calculate the surface area of the above figure.. (3)

[14]

QUESTION 9

Do this question on **ANNEXURE C**

9.1 ΔABC with A(3;0), B(2;4) and C(0;2) is enlarge using the rule $(x; y) \rightarrow (2x;\ 2y)$. The resulting image is $A^1B^1C^1$
Draw ΔABC and its image on the given grid. (2)

9.2 ΔABC word gereflekteer om die *y*-as. Die refleksie is $A^{11}B^{11}C^{11}$.

9.2.1 Draw the image on the given grid. $A^{11}B^{11}C^{11}$ (3)

9.2.2 What is the distance between A and A^{11}? (1)

[6]

QUESTION 10

10.1 During the two days before Christmas, a clothing store sold a number of women's dresses in the following sizes.

30 18 26 42 40 20 24 34 26 42 36 32 40 32 18 38 26 30

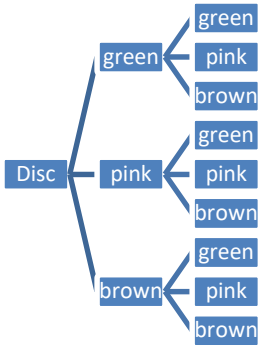
10.1.1 Calculate the mean of the data. (3)

10.1.2 What is the mode of the data. (1)

10.1.3 Determine the median of the data. (1)

10.1.4 What is the range of the data. (1)

10.2 A bag contains three coloured discs: green, pink and brown. The tree-diagram shows the possible outcomes when a disc is pulled out of the bag



10.2.1 Write down all the possible outcomes. (2)

10.2.2 Write down the total number of outcomes. (1)

10.2.3 Write down the probability of pulling out a brown and a brown (1)

10.2.4 Write down the probability that the first disc is a pink and the second disc is a green. (1)

10.2.5 Write down the probability of pulling out a purple disc (1)

[12]

TOTAAL: 120

ANNEXURE A:

NAME:---------- GRADE 9----------

MATHEMATICS: 2014

NOVEMBER EXAMINATION GRADE 9

SECTION A QUESTION 1

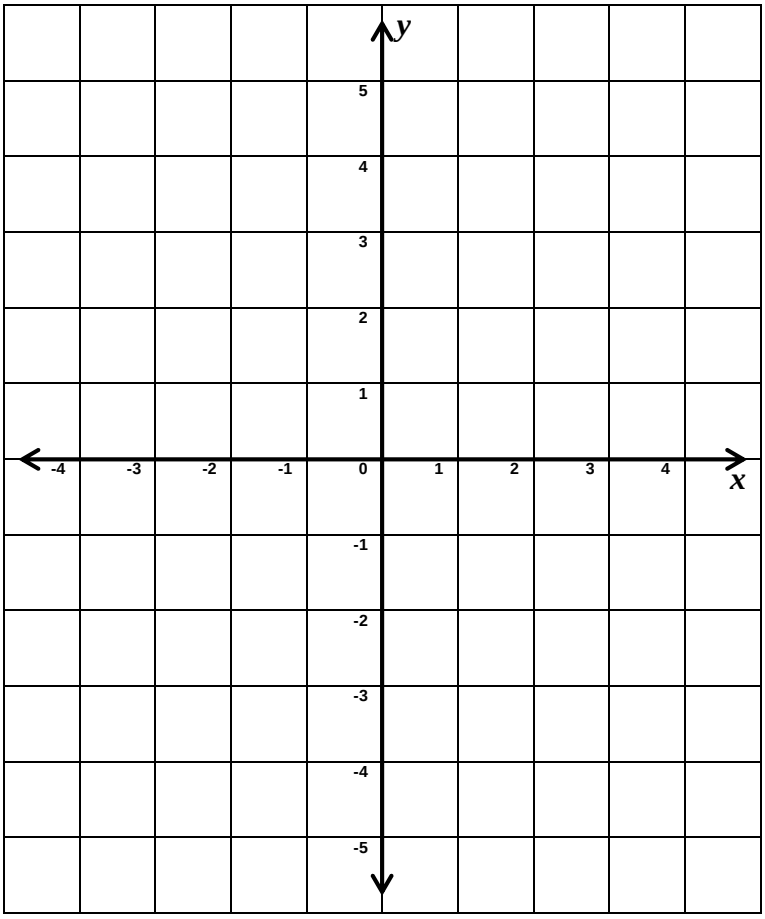
Answer sheet for Multiple Choice				
1	**A**	**B**	**C**	**D**
2	**A**	**B**	**C**	**D**
3	**A**	**B**	**C**	**D**
4	**A**	**B**	**C**	**D**
5	**A**	**B**	**C**	**D**
6	**A**	**B**	**C**	**D**
7	**A**	**B**	**C**	**D**
8	**A**	**B**	**C**	**D**
9	**A**	**B**	**C**	**D**
10	**A**	**B**	**C**	**D**

[10]

ANNEXURE B:

NAME:---------- GRADE 9----------

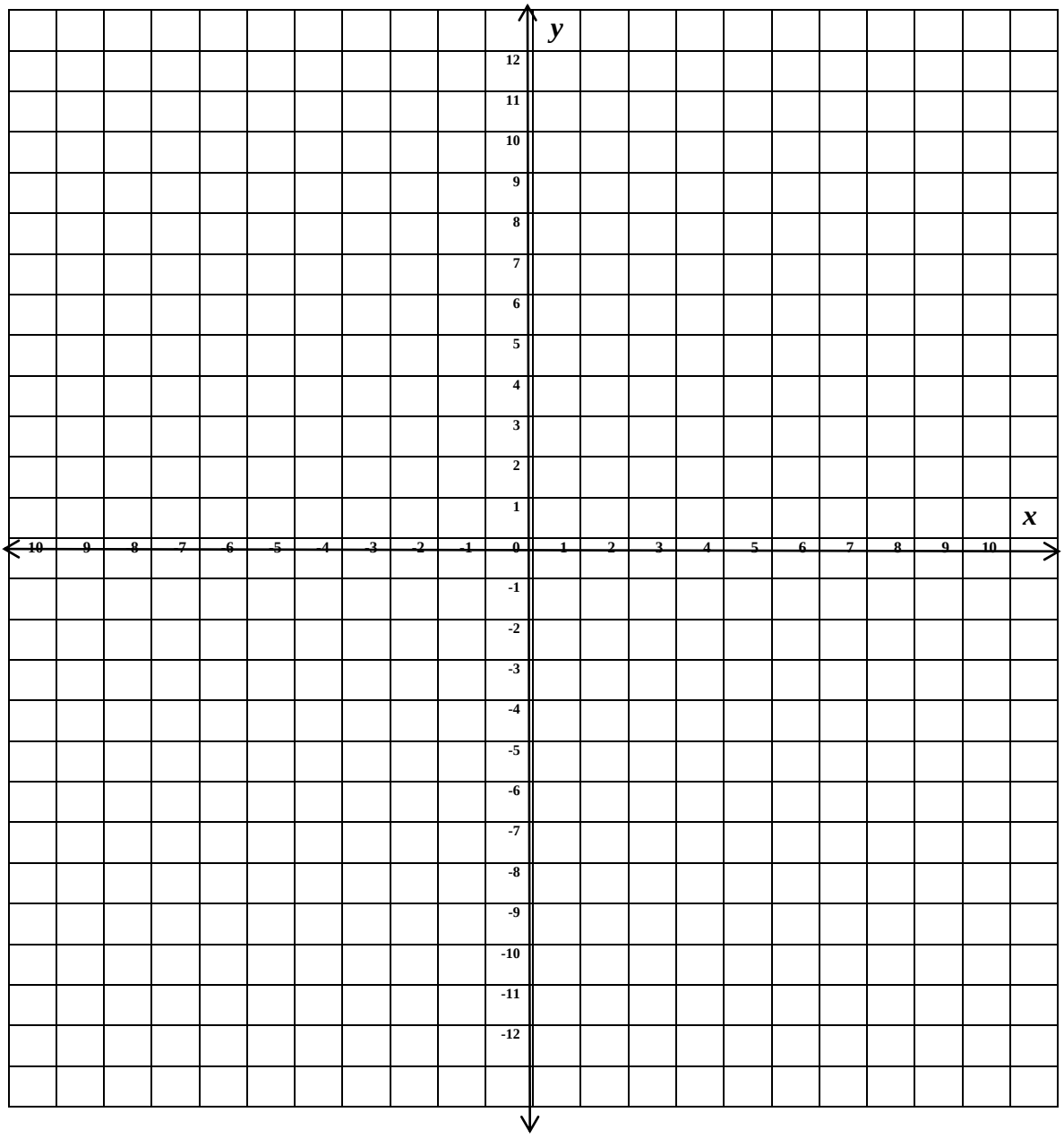
QUESTION 6.1



ANNEXURE C:

NAME:---------- GRADE 9----------

QUESTION 9.1 and 9.2.1



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NAME AND SURNAME:_____

NAME OF THE SCHOOL:_____

Question	Topic	Max Marks	Time	Learner's Mark	Moderated Mark
TOTAL					