HILLCREST HIGH SCHOOL

Grade 8 Exam
November 2015
Non-Calculator Paper 2

Examiner: A. Sparks

MARKS: 75 TIME: 1 hour

INSTRUCTIONS

1. This paper consists of 4 pages including the cover sheet.
2. Answer all questions on the paper provided.
3. You may not share calculators with anyone during the exam.
4. Round all answers off correctly to 2 decimal places unless otherwise stated.
5. Write your teacher's name on the top of your answer paper.
6. Number your answers correctly according to the numbers used in this question paper.
7. Show all working out.
8. Draw double margins.
9. It is in your best interest to set your work out neatly and legibly.

Question 1:

State whether the following are TRUE or FALSE:

1.1 Natural numbers can be divided into two groups, namely, even and odd numbers.

1.2 Consider the following set N = {1;2;3;4;5;.....}

1.3 The square roots of all natural numbers are also natural numbers.

1.4 A prime number is a number that is divisible only by itself and one.

1.5 The natural numbers more than 5 but less than 13 are: 6;7;8;9;10;11;12.

1.6 The first 6 prime numbers are 2;3;5;7;9;11.

1.7 A factor of a number is any number that divides exactly into the given number, with no remainder.

1.8 The factors of 6 are: 1; 2; 3; 6. [8]

Question 2:

Rewrite the following questions and calculate the answers fully:

2.1 $-4 + (-8)$ (1)

2.2 $3 - (-9) + (-2)^3$ (3)

2.3 $-3 \times \sqrt[3]{64}$ (2)
[6]

Question 3:

Calculate and simplify fully:

3.1 $1\frac{1}{4} + 2\frac{2}{5}$ (3)

3.2 $\frac{5}{12} \times \frac{6}{7}$ (2)

3.3 $\frac{\sqrt{9}}{\sqrt{16}}$ (2)
[7]

Question 4:

A perfect number is a number with factors (not including itself) which add up to itself. For example, 6 is a perfect number as $1 + 2 + 3 = 6$. Find the next perfect number. Show all working. [3]

Question 5:

Sanele, Kwezi and Lindo share a house and they all work shifts.
Sanele is only home very second night. Kwezi is home every third night.
Lindo is home every fourth night.
It is Saturday 31st March and they are all home.

5.1 When is the next evening when Sanele and Kwezi will both be home? (3)

5.2 When is the next night that all three of them will be home? (3)
[6]

Question 6:

6.1 Write 256 as a power of 2. (2)

6.2 Hence, calculate $\sqrt{256}$ (2)
[4]

Question 7:

Complete the following, write the question number and the missing word:

7.1 $2x + 5y - 1$ is called an _____ (1)

Use the terms in 7.1 for 7.2 – 7.4

7.2 The coefficient of y is_____ (1)

7.3 The constant is ____ (1)

7.4 There are _____ terms in the expression. (1)
[4]

Question 8:

Look at the following list of terms. Identify and write down the unlike term in each list.

8.1 x; $2x$; y; $3x$

8.2 4; $4a$; $2a$; $-a$

8.3 $3xyz$; $3xy$; $6xyz$; $-xyz$

8.4 xy; yx; $-2x$; $3yx$ [4]

Question 9:

Simplify the following fully:

9.1 $3p^2 - 4p + p^2 + 9p$ (2)

9.2 $-2x(x^2 - 4x + 1)$ (3)

9.3 $\frac{a^3b^2c}{abc}$ (2)

9.4 $\frac{4xy^3 - 5x^5y + xy}{xy}$ (3)
[10]

Question 10:

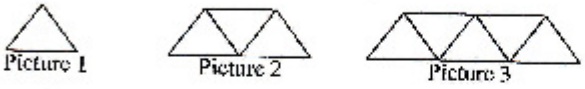
The Southern African Large Telescope (SALT) in Sunderland has an elevation of 1 787 meters above sea level. It cost $36 million to finance it for its first 10 years. The telescope has been used to discover star clusters as far as $1{,}5137\times 10^{14}$ km away from earth.

10.1 Write $36 million in scientific notation. (2)

10.2 Write $1{,}5137\times 10^{-4}$ km in full as a normal number. (2)

[4]

Question 11:



11.1 Extend the pattern by drawing the next picture. (2)

11.2 Complete the table below, showing the number of lines in each picture: (2)

Picture number	1	2	3	4	5
Number of lines	3	7	11	(a)	(b)

11.3 Write a formula to show the number of lines in any given picture number (n). (2)

11.4 Use your formula to find the number of lines in the 50th picture. (2)

[8]

Question 12:

Complete the table below, by writing the letter and the value that would make the blocks equivalent:

Decimal	Fraction (in simplest form)	Percentage
0,35	(a)	(b)
(c)	$\frac{3}{50}$	(d)

[4]

Question 13

Solve for x:

13.1 $6(x-5)=18$ (3)

13.2 $8x+7=4x-17$ (4)

[7]