

HILLCREST HIGH SCHOOL



GRADE 9

JUNE EXAMINATION 2017

MATHS

TIME : 2 HOURS

MARKS : 150

EXAMINER : MRS WOODROW

MODERATOR : MRS SMITH

Gr 9 MATHEMATICS JUNE EXAM 2017										
Name :										
Teacher :					Date :					Total
Q1 (26)	Q2 (3)	Q3 (16)	Q4 (7)	Q5 (12)	Q6 (9)	Q7 (15)	Q8 (27)	Q9 (9)	Q10 (26)	150

Question 1 – Multiple Choice

1.1	
1.2	
1.3	
1.4	
1.5	

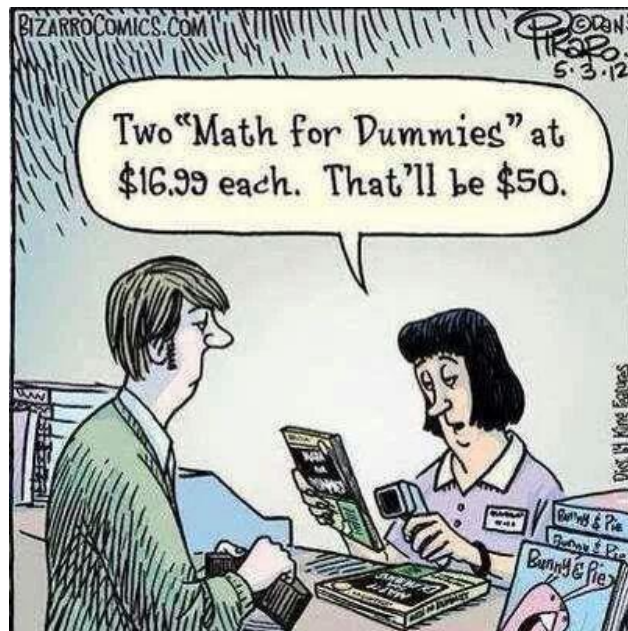
1.6	
1.7	
1.8	
1.9	
1.10	

1.11	
1.12	
1.13	

INSTRUCTIONS TO CANDIDATES

1. This paper consists of 10 questions and 14 pages.
2. **Answer the multiple choice question (Question 1) in the space provided at the front of the answer booklet.**
3. Answer all questions on this **QUESTION PAPER, NO** additional paper will be provided.
4. **ALL CALCULATIONS MUST BE SHOWN CLEARLY.**
5. An approved calculator (non-programmable and non-graphical) may be used unless stated otherwise.
6. All final answers must be rounded off correct to **TWO decimal places** unless stated otherwise.
7. Indicate units of measurement, where applicable.
8. Diagrams are NOT necessarily drawn to scale, unless stated otherwise.
9. Write neatly and legibly.

****GOOD LUCK****



1

QUESTION 1**[26]**

1.1 Identify the prime number from the following:

- A) 26 B) 39 C) 41 D) 52

1.2 Which of the following is a real number?

- A) 4 B) 4,3 C) $\sqrt{2}$ D) All of the above.

1.3 Give the equivalent fraction of $\frac{1}{5}$

- A) 0,5 B) $\frac{15}{25}$ C) 0,2 D) 0,005

1.4 Given the expression $-5x^2 + \frac{c}{3} - 2x + 8$, What is the coefficient of x^2

- A) 8 B) -2 C) $\frac{c}{3}$ D) -5

1.5 If you expand $(x - 5)^2$ your answer would be :-

- A) $x^2 - 10$ B) $x^2 - 25$ C) $x^2 - 5x + 25$ D) $x^2 - 10x + 25$

1.6 How many terms are there in the following expression? $5 - (6x + 3) + \frac{2y-8}{3}$

- A) 3 B) 4 C) 5 D) 6

1.7 The next number in the sequence 1, 5, 11, 19, is ?

- A) 30 B) 27 C) 31 D) 29

1.8 Calculate the answer for the following $\sqrt{36x^{16}}$:-

- A) $18x^4$ B) $6x^4$ C) $18x^8$ D) $6x^8$

1.9 The product of a number and 4 is decreased by 6 and equals 20. Which of the following equations matches the statement?

- A) $4x + 6 = 20$ B) $4(x - 6) = 20$
 C) $4 - 6x = 20$ D) $4x - 6 = 20$

1.10 If point T (3 ; 2) is reflected about line defined by $y = x$, the co-ordinates of T¹ are?

- A) (2; 3) B) (-2; -3) C) (2; -3) D) (-2; 3)

1.11 In Isosceles ΔABC , angle \hat{A} is 72° , What are the sizes of \hat{B} and \hat{C} if $B = C$:-

- A) 45° B) 54° C) 36° D) 108°

1.12 Line c has a gradient of $\frac{5}{4}$. If line d is parallel to c. What is the gradient of line d?

- A) $\frac{5}{4}$ B) $-\frac{5}{4}$ C) $\frac{4}{5}$ D) $-\frac{4}{5}$

1.13 What is the correct rule for the following sequence : 23; 16; 9

- A) $T_n = 7n + 2$ B) $T_n = 7n - 30$ C) $T_n = -7n + 30$ D) $T_n = -7n + 2$

2 **QUESTION 2**

2.1 State whether the following numbers are rational or irrational numbers.

2.1.1 0,0765 (1)

2.1.2 $\sqrt[3]{-8}$ (1)

2.1.3 π (1)

[3]

3 **QUESTION 3**

3.1 Calculate the following :-

3.1.1 Write down 28 as the product of its prime factors. (1)

3.1.2 Find the lowest common multiple of 18 and 28, using the products of prime numbers. (3)

3.2 Write the following ratio's in their simplest form :-

3.2.1 2,5 hrs : 75 min (2)

3.2.2 0,28 : 1,4 (2)

- 3.2.3 In the local co-ed softball league, the male to female ratio is 6:5. If there are 143 players in the league, how many are female? (3)

- 3.2.4 Convert the following quantities :-

- 3.2.4.1 31680 minutes to days. (3)

- 3.2.4.2 1700 cm to m. (1)

- 3.2.4.3 0,00395 kl to litres. (1)

[16]

4 QUESTION 4

- 4.1 Calculate the following (you may use your calculator, but show all working).

- 4.1.1 $\left(1\frac{1}{8} + 3\frac{3}{8}\right) \div 1\frac{1}{2}$ (4)

4.1.2 $\frac{2str}{p} \times \frac{p}{r^2} \div \frac{ts}{p}$ (3)

[7]

5 **QUESTION 5**

5.1 Write the following numbers in scientific notation :-

5.1.1 3750000000 (2)

5.1.2 0,000782 (2)

5.2 Simplify, leaving in positive exponential form (show all working) :-

5.2.1 $3^2 \times 3^5$ (1)

5.2.2 $x^3 \div x^6$ (2)

5.2.3 $(8x^3)^0$ (1)

5.2.4 $(2m^3)^3$ (2)

5.2.5 $2^{-1} \times 6^2 \times 3^{-2}$ (2)

[12]

6 **QUESTION 6**

6.1 Expand and simplify :-

6.1.1 $2x(3 - y) + 4xy - 7x$ (2)

6.1.2 $(2x - 4)(2x + 4)$ (2)

6.1.3 $(1 - 4y)^2$ (2)

6.1.4 $(2x + 3)(3x - 2)$ (3)

[9]

7 **QUESTION 7**

7.1 Factorise the following fully :-

7.1.1 $18ab - 3bc$ (2)

7.1.2 $9x^2 - y^2$ (3)

7.1.3 $-12a + 24a^3$ (2)

7.1.4 $2(x - y) - p(y - x)$ (3)

7.1.5 $x^2 - 11x + 18$ (2)

7.1.6 Without the use of a calculator, calculate the following $(97)^2 - 9$
(Hint: Factorize) (3)

[15]

8 **QUESTION 8**

8.1 Solve the following equations :-

8.1.1 $5x - 7 = 8$ (2)

8.1.2 $x(x + 5) = 0$ (2)

8.1.3 $2x + 1 = 4x + 5 - 3x$ (3)

8.1.4 $3x^2 - 12 = 0$ (4)

8.1.5 $3(7y + 6) = 9(3y - 2)$ (4)

8.1.6 $\frac{x+2}{3} - \frac{x-3}{4} = 0$ (4)

8.1.7 John is 7 years older than Mary. In 5 years' time the sum of their ages will be 71.
How old are John and Mary now? (5)

8.1.8 The operational speed of the Gautrain, allows it to cover a distance of 95km in 36 minutes.
Calculate the average speed of this train in km/h. (3)

[27]

9 **QUESTION 9**

9.1 In the number sequence -5; -9 ; -13 ; -17 ; :-

9.1.1 Determine the next 2 terms in the number pattern. (2)

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9.1.2 Determine the general term T_n , of the pattern shown in question 9.1. (2)

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9.1.3 Find the 27th term? (2)

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9.1.4 Show by calculations whether -65 is a number in the sequence. (3)

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[9]

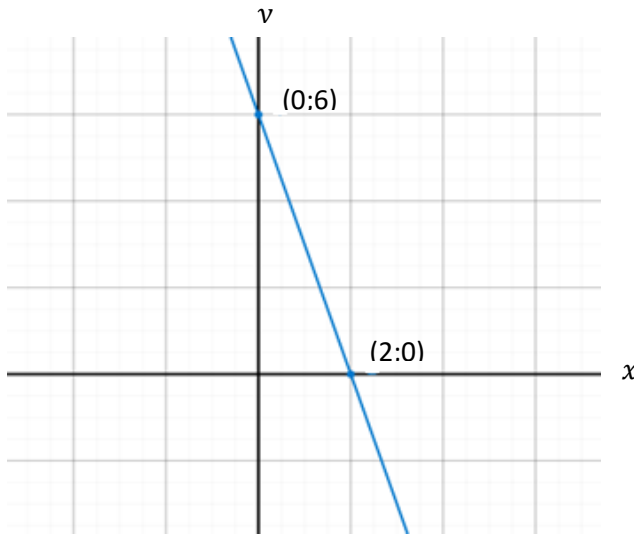
FUN

	5								
6	3	8	7	1					2
			2	5		8	6		
9	1			8	2		5		
	7		3	6			8	9	
	4	6		3	5				
3				4	8	7	1	6	
							4		

Take a breather when you are finished and checked your work!!!!

10 QUESTION 10

Study the following graph and answer the following questions :-



10.1 Calculate the gradient of the straight line. (2)

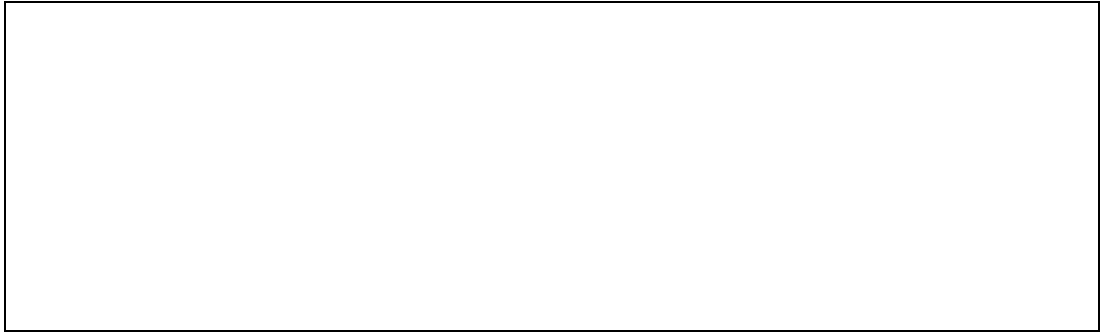
10.2 Determine the equation of the straight line. (2)

10.3 What would the gradient of the line be that is parallel to the given graph. (1)


10.4 Using the dual intercept method, plot the following graphs on the same set of Axis. (show all calculations for this and plot the graphs on Annexure 1)

$f(x) = 2x + 4$ and $g(x) = -x + 1$ (9)

- 10.5 What are the coordinates where the two graphs above are equal to each other?
(Show all working) (3)



- 10.6 If point A is (3 ; 2) and point B is (1 ; -7). Determine the length of AB. (Hint : Pythagoras)(5)



- 10.7 What would the equation of the graph $h(x)$ be, if it were perpendicular to $p(x) = 2x - 3$ passing through (-3 ; -9). (4)

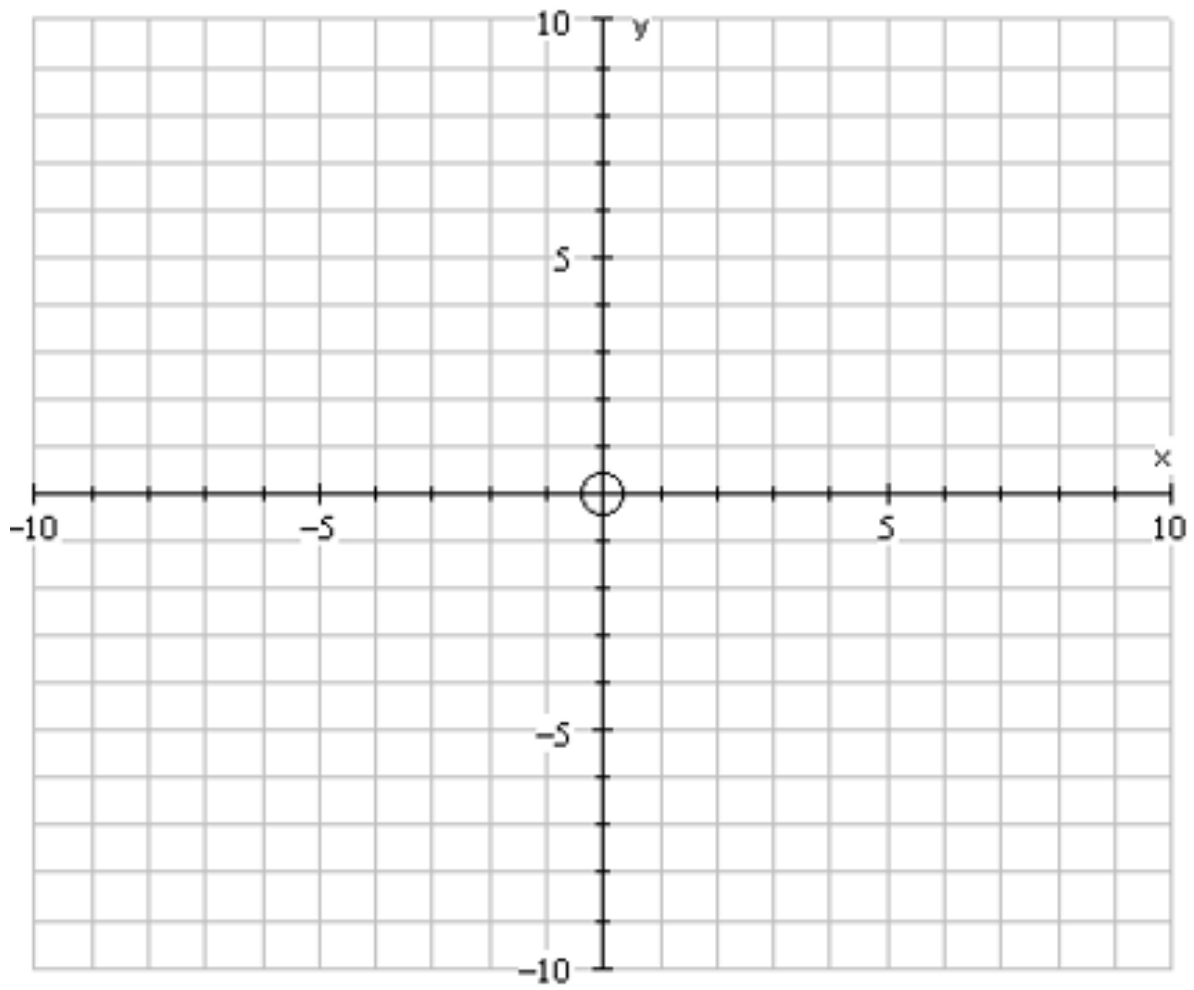


[26]

GRAND TOTAL [150]

**** HAVE YOU ANSWERED ALL THE QUESTIONS??**

ANNEXURE 1



Calculations :-

Exam Breakdown Gr9 June

Multiple Choice	26
Numbers, conversions, ratios	19
Order of operation	7
Scientific Notation and exponents	12
Algebra	9
Factorising	15
Solving for x	27
No. patters	9
Functions	26
TOTAL	150