

# HILLCREST HIGH SCHOOL



GRADE 9

NOVEMBER EXAMINATION 2016

## MATHS CALCULATOR PAPER 1

TIME : 2 HOURS

MARKS : 140

EXAMINER : MRS WOODROW  
MODERATOR : MRS COLE

Gr 9 MATHEMATICS NOVEMBER PAPER 1									
Name :									
Teacher :					Date :				Total
Q1 (20)	Q2 (18)	Q3 (8)	Q4 (24)	Q5 (8)	Q6 (12)	Q7 (20)	Q8 (25)	Q9 (5)	140

### Question 1 – Multiple Choice

1.1			1.6	
1.2			1.7	
1.3			1.8	
1.4			1.9	
1.5			1.10	



**1 QUESTION 1**

**1.1** This morning Desmond took a history test. There were 35 Multiple choice questions and he answered 80% of the questions. How many did he answer?

- A) 30                      B) 28                      C) 25                      D) 27

**1.2** If  $a = 3$  and  $b = 2$  then the answer to  $3a^2b - 6ab^4$  is :-

- A) - 180                      B) 234                      C) - 90                      D) - 234

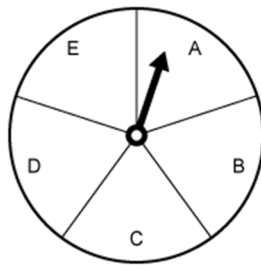
**1.3** James gets advised by the pet shop owner to fill his fish tank to  $\frac{3}{4}$  full. If this amount is 18,75lt and the breadth is half the length. What will the actual height be if the breadth is 25cm? (1lt = 1000cm<sup>3</sup>)

- A) 15cm                      B) 20cm                      C) 11,25cm                      D) 22,5cm

**1.4** A circular horse training area needs to be fenced. What will the radius be if the perimeter is 50m (round off your answer to the nearest whole no.) :-

- A) 8m                      B) 16m                      C) 25m                      D) 32m

**1.5** If you use the spinner two times in a row, what is the probability that you will spin a C followed by landing on E?



- A)  $\frac{1}{5}$                       B)  $\frac{2}{5}$                       C)  $\frac{1}{25}$                       D)  $\frac{2}{25}$

**1.6** The final amount if R98,15 is decreased by 15% and then increased by 10%.

- A) R14,82                      B) R98,10                      C) R91,76                      D) R93,24

**1.7** The 25<sup>th</sup> term of the sequence 2; 5; 8; 11; ... is :-

- A) 74                      B) 75                      C) 73                      D) 77

**1.8** In Isosceles  $\Delta ABC$ , angle  $\hat{A}$  is  $36^\circ$ , What are the sizes of  $\hat{B}$  and  $\hat{C}$  if  $B = C$ :-

- A)  $45^\circ$                       B)  $72^\circ$                       C)  $71^\circ$                       D)  $108^\circ$

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

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

**1.10**  $(3 \times 10^5)(2 \times 10^1)$

- A)  $6 \times 10^6$                       B)  $5 \times 10^5$                       C)  $5 \times 10^6$                       D)  $5 \times 10^5$

**2 QUESTION 2**

**2.1** Simplify the following expressions fully :-

**2.1.1**  $-9d(-d^2 + 5)$  (2)

**2.1.2**  $(2t - 4)(-4t + 4)$  (3)

**2.1.3**  $\frac{(3pq^3)^2}{18p^3q^4}$  (3)

**2.1.4**  $\frac{3s^{-2}}{t} \div \frac{6s}{2t^{-3}}$  (3)

**2.1.5**  $\frac{4x}{3} - \frac{2x}{5}$  (3)

**2.1.6**  $5x(2x^2 - 3x + 7)$  (2)

**2.1.7**  $(xy^3)^4$  (2)

**3 QUESTION 3**

**3.1** Factorise the following fully :-

**3.1.1**  $3xy^2 - 12y$  (2)

**3.1.2**  $3a^3 - 18a^2 + 15a$  (3)

**3.1.3**  $x(a - 2b) + 3y(2b - a)$  (3)

**[8]**

**4 QUESTION 4**

**4.1** Solve the following equations :-

**4.1.1**  $3x + 27 = 9x - 3$  (2)

**4.1.2**  $3x - 4(x + 1) = -2$  (3)

**4.1.3**  $\frac{x+3}{2} - \frac{x-6}{3} = -4$  (4)

**4.1.4**  $2^{3x-2} = 16$  (3)

**4.1.5**  $x^3 + 3x^2 - 54x = 0$  (4)

**4.1.6** John is 5 years older than Mary. In seven years' time the sum of their ages will be 47.  
How old are John and Mary now? (4)

**4.2** The distance between Cape Town and Johannesburg is 1692 km :-

**4.2.1** Convert this distance to mm. Write your answer in scientific notation. (2)

**4.2.2** If it takes Samantha 14 hours at a constant speed to travel by car from Cape Town to Johannesburg, how fast (in km/h) does she go? (Round answer off to nearest unit). (2)

**5 QUESTION 5**

**5.1** In the number sequence  $-1 ; -4 ; -7 ; -10 ; \dots$  :-

**5.1.1** Write down the next 2 terms in the number pattern. (2)

**5.1.2** Write the general term  $T_n$ , of the pattern shown in question 3.1. (2)

**5.1.3** Calculate the 23th term? (1)

**5.1.4** Show by calculations whether  $-167$  a number in the sequence or not? (3)

**[8]**

**6 QUESTION 6**

**6.1** Isaak saves R10 000 in a fixed deposit account at the bank for 3 years at a simple interest rate of 9% p.a. How much interest will he earn at the end of the savings period? (3)

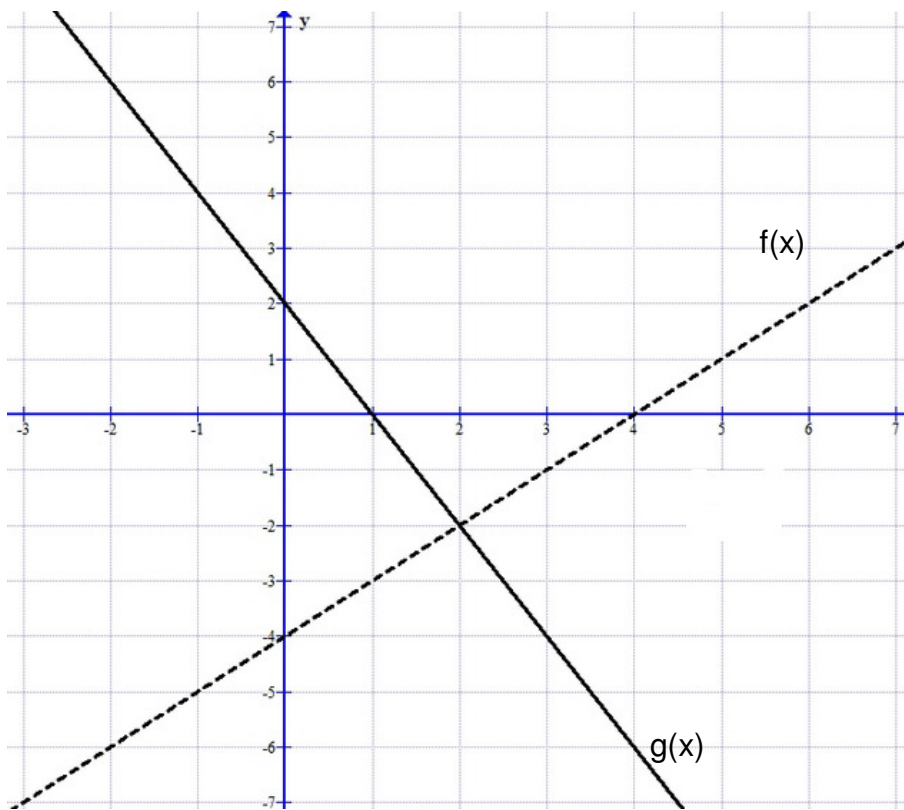
**6.2** A marked price for a iPad is R7500. If Sam wants to purchase this iPad on Hire Purchase with an interest of 12%. Calculate how much he would pay monthly over 36 months? (4)

- 6.3 Mandy invested R15000 5 years ago compounded annually and now receives R28000. Calculate what the interest rate is that she earns on her investment? (5)

[12]

7 QUESTION 7

- 7.1 In the diagram below are two graphs :-



- 7.1.1 What is the y-intercept of  $f(x)$ ? (1)

**7.1.2** Determine the equation of graph  $f(x)$ .

(4)

**7.1.3** What is the x-intercept of  $g(x)$ ?

(1)

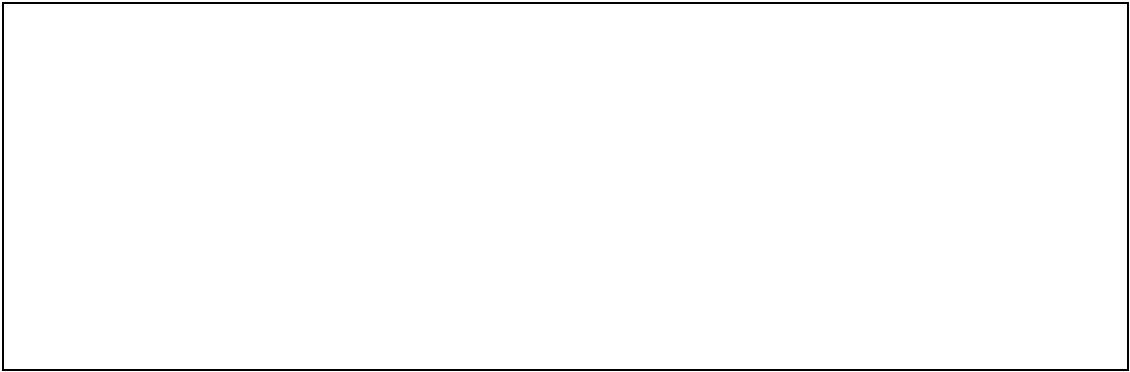
**7.1.4** Determine the equation of graph  $g(x)$  using any method.

(4)

**7.1.5** At which point are both graphs equal?

(2)

**7.1.6** If point A is (-3;8) and point B is (1;0). Determine the length of AB. (Hint : Pythagoras) (3)



**7.1.7** What would the equation of the graph  $h(x)$  be, if it were perpendicular to  $p(x) = x + 2$  passing through (-4;-2). (5)



**[20]**

**8 QUESTION 8**

**8.1** The marks for a Life Sciences examination written by 16 learners in a Grade 9 class are provided :-

10 ; 48 ; 74 ; 82 ; 33 ; 54 ; 18 ; 46 ; 66 ; 74 ; 64 ; 80 ; 94 ; 42 ; 82 ; 74

**8.1.1** Determine the mean mark for the class (3)

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**8.1.2** What is the mode of the marks? (1)

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**8.1.3** Determine the median of the marks. (2)

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**8.1.4** Calculate the Range of the marks. (2)

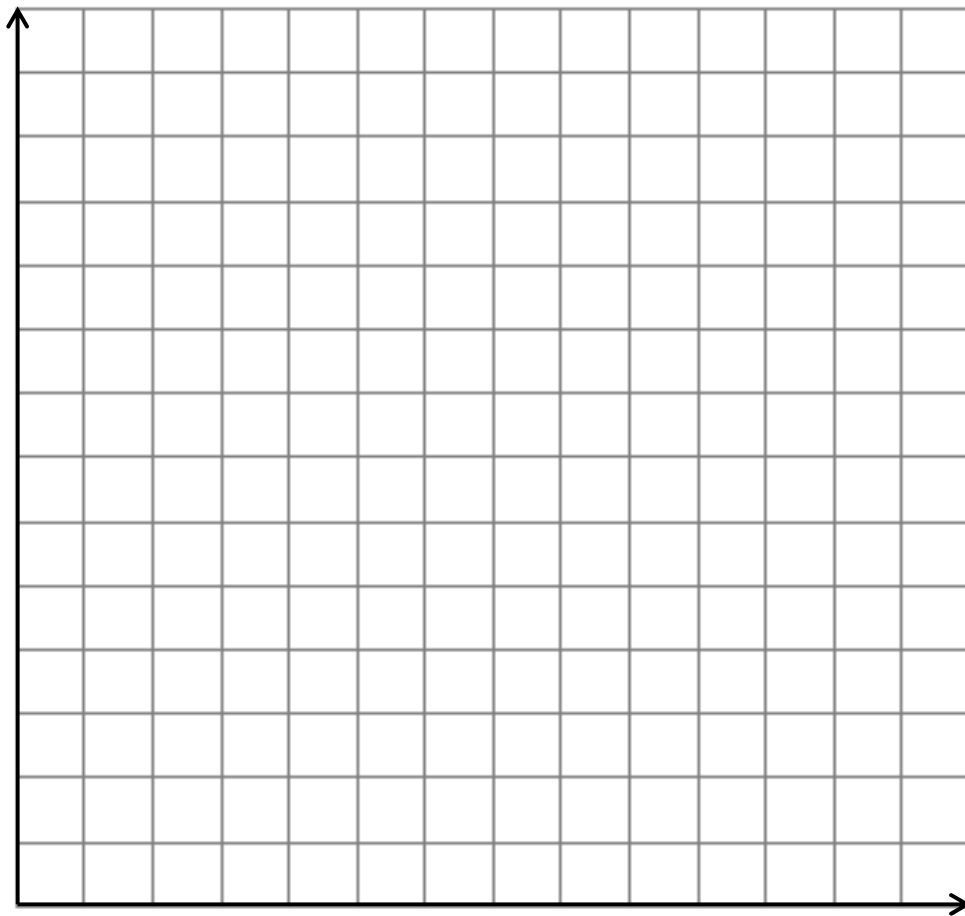
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**8.1.5** Complete the following table :- (2)

Mark Interval	Tally	Frequency
0 – 19		
20 – 39		
40 – 59		
60 – 79		
80 – 99		

**8.1.6** Draw a histogram showing the results of this Grade 9 class.

(5)



**8.1.7** Which best represents the learners' marks for this set of data :- the mean, the median or the mode? Give a reason. (1)

8.2 The following data is given below :-

Broken plates per shipment	
Stem	Leaf
1	2 3 5 8 9
2	1 3 7 9
3	4 5 5 7 8 9
4	2 3
5	1 4 5 7 7 8

Key : 1/5 = 15

8.2.1 What is the range of the data? (3)

8.2.2 What is the median? (1)

8.2.3 Calculate the mean of the data. (3)

8.2.4 What is the mode if any? (2)

[25]

**9 QUESTION 9**

**9.1** John buys the following items of clothing: T-shirts 1 Red, 1 Green and 1 Orange, he also buys two pairs of pants: 1 pair of chino's and 1 pair of jeans.

**9.1.1** Draw a Tree diagram, showing all the possible outcomes of outfits he could wear. (4)

T-shirts	Pants	Outcomes

**9.1.2** If he chose items from his shopping bag without looking what would be the probability that he would choose a pair of a green T-shirt and jeans? (1)

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[5]

**GRAND TOTAL**

**[140]**

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