

# HILLCREST HIGH SCHOOL



## Grade 8 Mathematics Exam Paper 1 November 2020

**MARKS: 150**

**TIME: 2 hours**

<b>NAME:</b>						<b>CLASS:</b>		
<b>TEACHER:</b>						<b>DATE:</b>		
<b>Q1</b>	<b>Q2</b>	<b>Q3</b>	<b>Q4</b>	<b>Q5</b>	<b>Q6</b>	<b>Q7</b>	<b>TOTAL</b>	<b>%</b>
<b>8</b>	<b>22</b>	<b>27</b>	<b>18</b>	<b>13</b>	<b>33</b>	<b>29</b>	<b>150</b>	

### **INSTRUCTIONS**

- 1. This question paper consists of 7 questions. Answer ALL the questions.**
- 2. You may use an approved calculator (non-programmable and non-graphical), unless stated otherwise.**
- 3. Show ALL calculations clearly.**
- 4. Round off ALL final answers to TWO decimal places, unless stated otherwise.**
- 5. Indicate units of measurement, where applicable.**
- 6. Maps and diagrams are NOT necessarily drawn to scale, unless otherwise stated.**
- 7. Write neatly and legibly.**



## Question 2

Consider the list of numbers below:

1; 2; $2\frac{1}{2}$ ; 3; 4; 5; 6; 8; 9; 10; 12; $\frac{25}{2}$ 16; 15; 24
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2.1 From the numbers in the given list, write down:

- a) The numbers that are not Natural or Counting numbers: \_\_\_\_\_
- b) The factors of 24: \_\_\_\_\_
- c) The factors of 16: \_\_\_\_\_
- d) The Highest Common Factor (HCF) of 24 and 16: \_\_\_\_\_
- e) The Multiples of 3: \_\_\_\_\_
- f) The Multiples of 5: \_\_\_\_\_
- g) The Lowest Common Multiple(LCM) of 3 and 5: \_\_\_\_\_
- h) The number that is a factor of every number: \_\_\_\_\_

(12)

2.2 Johnny has a bag of toy army men, that can be divided into groups of exactly 6; 4 and 10.  
What is the smallest number of army men that he can have? (4)

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2.3 Use prime factors to show that  $\sqrt{1764}$  is 42.

(3)

2.4 Round off each of the following numbers to the number of decimal places indicated in brackets.

2.4.1 13,7653 (3 decimal places) \_\_\_\_\_ (1)

2.4.2 78,996 (2 decimal places) \_\_\_\_\_ (1)

2.4.3 142,091256 (5 decimal places) \_\_\_\_\_ (1)

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### **Question 3**

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3.1 Calculate the following:

(3)

a)  $\frac{1}{2}$  of 340 learners

\_\_\_\_\_

b)  $\frac{3}{4}$  of 1200 children

\_\_\_\_\_

c)  $\frac{3}{5}$  of 1230km

\_\_\_\_\_

3.2 Calculate each of the following. Show all your working. Use the space in the blocks below to do your working.

<p><b>a)</b> <math>\frac{7}{9} + \frac{4}{11}</math> (1)</p>	<p><b>b)</b> <math>\frac{7}{8} - \frac{5}{12}</math> (2)</p>	<p><b>c)</b> <math>3\frac{1}{3} - 2\frac{3}{4}</math> (4)</p>	<p><b>d)</b> <math>\frac{2}{5} \times \frac{3}{7}</math> (1)</p>
<p><b>e)</b> <math>1\frac{3}{7} \times 2\frac{1}{10}</math> (3)</p>	<p><b>f)</b> <math>\frac{14}{5} \div \frac{7}{15}</math> (2)</p>	<p><b>g)</b> <math>\frac{8}{\frac{1}{4}}</math> (3)</p>	

3.4 Calculate the following :

a) 10% of R92

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b) 25% of R56

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3.5 Increase R750 by 15%. (2)

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3.6 A shop offers bicycle that costs R2500. If you pay cash you get a discount of 30%. Calculate how much you pay for the bicycle. (2)

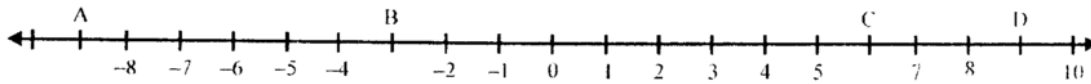
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### Question 4

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4.1.1 Which numbers are missing at A, B, C and D?

(4)

A	B	C	D

4.1.2 Which number has a greater value: 10 or -15? Give a reason for your answer. (2)

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4.2 Calculate each of the following. Show ALL working .

4.2.1  $-3 \times 4 =$

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4.2.2  $-3 + (9-11) =$

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4.2.3  $32 \div -8 =$

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4.2.4  $-15 + -12 =$

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4.2.5  $(2 \times -6) - 5 =$

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4.2.6  $(6 - 18) \times 4 =$

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(9)

4.3 Calculate the missing numbers. Write the answer on the line underneath the question.

4.3.1  $67 + \square = -70$

4.3.2  $67 - \square = -70$

4.3.3  $67 - \square = 70$

(3)

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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### Question 5

Consider the expression  $7x^2 + 5x + 4$  and then answer the questions that follow.

5.1 Write down the constant term. \_\_\_\_\_ (1)

5.2 What is the degree of the expression? \_\_\_\_\_ (1)

5.3 Write down the coefficient of the second term. \_\_\_\_\_ (1)

5.4 Calculate the value of the expression  $7x^2 + 5x + 4$  if  $x = -1$ . (3)

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

5.2 Complete the following sentences by filling in the most appropriate word from the list below. Write the question number and the word/s only.

add, subtract, multiply, divide, plus, minus, like, unlike, zero, one
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5.2.1 Terms are separated by \_\_\_\_\_ and \_\_\_\_\_ signs. (2)

5.2.2 We can only add or subtract \_\_\_\_\_ terms. (1)

5.2.3 When we multiply bases that are the same, we \_\_\_\_\_ the exponents. (1)

5.2.4 When there is no coefficient or exponent written, the value of the coefficient or exponent is \_\_\_\_\_. (1)

5.3 How many terms in the following expressions?

5.3.1  $3a + 2b - 5cd$  \_\_\_\_\_ (1)

5.3.2  $4t + (2p + 3q)$  \_\_\_\_\_ (1)

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### Question 6

Simplify each of the following.

6.1  $3a^2 - 2a + 6a^2 + 8a$  (2)

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6.2  $2a + 3y - a - y$  (2)

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6.3  $m^3 \times m^4$  (1)

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6.4  $a^3 \times 2a \times 4a^2$  (2)

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6.5  $3m + 2m \times 7$  (3)

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6.6  $\frac{a^7}{a^2}$  (1)

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6.7  $\frac{2a^3b^6c^8}{-ab^4c^2}$  (3)

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6.8  $-4a^2b^3c^4 \times -2ab^2c^3$  (4)

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6.9  $(3a - a) \times 2$  (2)

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6.10  $\frac{5a^4 - 10a^8 + 15a^2}{-5a^2}$  (4)

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6.11  $2(3a - 5)$  (2)

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6.12  $-2a(3a^2 - 2a + 6)$  (3)

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6.13  $4(-2b + 5) - 3a(5a - 3b)$  (4)

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**Question 7**

Solve for a for each of the following.

7.1  $a + 7 = 10$  (1)

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7.2  $-3a = 18$  (2)

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7.3  $\frac{a}{3} = 24$  (1)

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7.4  $6a - 2 = 16$  (3)

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7.5  $4a + 2 = -10$  (3)

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7.6  $2a + 15 = 29$  (3)

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7.7  $2(3 - a) = 8$  (4)

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7.8  $6a - 2 = 2a + 10$  (3)

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7.9  $\frac{d}{-4} = 5$  (1)

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7.10  $6(j - 1) = 3(j + 4) + 6$  (5)

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7.11 I think of a number. If I multiply the number by 3 and then add 6 I will get 51. What number did I think of? (Show how you got the answer.) (3)

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[29]