

**HILLCREST HIGH SCHOOL**



**Grade 8 Mathematics Exam**  
**Paper 2**  
**November 2016**

**MARKS: 90**

**TIME: 1 hour**

<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>GRAND TOTAL</b>	<b>%</b>
<b>5</b>	<b>15</b>	<b>25</b>	<b>7</b>	<b>6</b>	<b>16</b>	<b>16</b>	<b>90</b>	<b>265</b>	

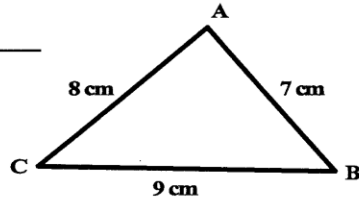
**INSTRUCTIONS**

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 1**

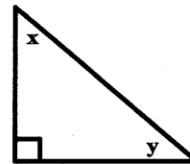
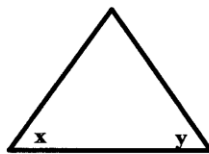
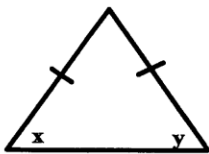
1.1 In the given triangle the longest side is \_\_\_\_\_ (1)

1.2 In the given figure the largest angle is \_\_\_\_\_ (1)



1.3  $x = y$  ;  $x + y = 90^0$  ;  $x + y = 180^0$  ; no relationship

Under the given diagrams, write the relationship from the list above which applies to the diagram:

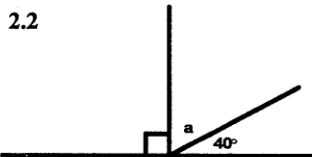


\_\_\_\_\_ (3)

**QUESTION 2**

The boxes alongside contains the answers to the questions below. Choose the correct answer and where necessary the correct reference. Answers may not be used more than once and not all the answers in the box will be used.

2.1 The complement of  $30^0$  is \_\_\_\_\_

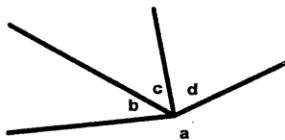


$a =$  \_\_\_\_\_  
( \_\_\_\_\_ )

- $100^0$     $360^0$
- $120^0$     $180^0$
- $108^0$     $60^0$
- $20^0$     $150^0$
- $45^0$     $270^0$
- $50^0$     $80^0$
- $135^0$     $240^0$

- Comp adj  $\angle$ 's
- Vert opp  $\angle$ 's
- $\angle$ 's on a straight line
- $\angle$ 's round a pt
- $\angle$  sum in  $\Delta$
- Ext  $\angle$ 's of a  $\Delta$
- $\angle$ 's opp = sides
- Sides opp =  $\angle$ 's

2.3

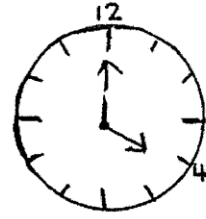


$a + b + c + d =$  \_\_\_\_\_ ( \_\_\_\_\_ )

2.4 The supplement of  $30^\circ$  is \_\_\_\_\_

2.5.1 The obtuse angle formed by the hands of the clock is \_\_\_\_\_

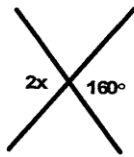
2.5.2 The reflex angle formed by the hands of the clock is \_\_\_\_\_



2.6 In 45 minutes, the minute hand of the clock turns through \_\_\_\_\_ degrees.

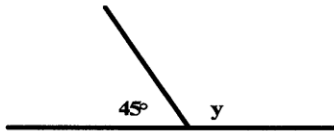
2.7 An obtuse angle lies between  $90^\circ$  and \_\_\_\_\_

2.8



$x =$  \_\_\_\_\_ ( \_\_\_\_\_ )

2.9



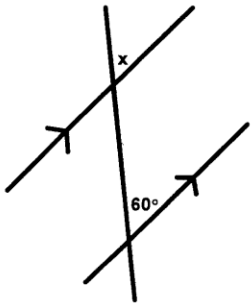
$y =$  \_\_\_\_\_ ( \_\_\_\_\_ )

2.10 How many degrees are there between any two spokes of a bicycle wheel that has 18 spokes?  
\_\_\_\_\_

**QUESTION 3**

Determine the value of the angles marked with letters, giving reasons.

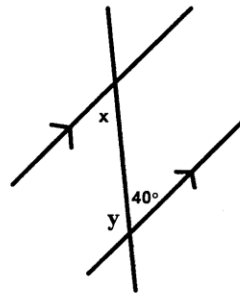
3.1.1



$x =$  \_\_\_\_\_

Reason: \_\_\_\_\_ (2)

3.1.2



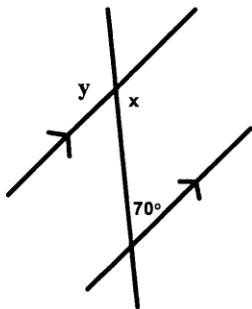
$x =$  \_\_\_\_\_

Reason: \_\_\_\_\_ (2)

$y =$  \_\_\_\_\_

Reason: \_\_\_\_\_ (2)

3.1.3



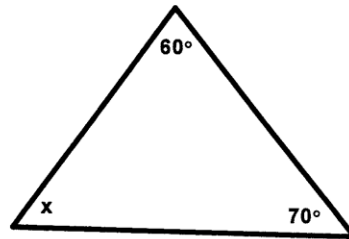
$x =$  \_\_\_\_\_

Reason: \_\_\_\_\_ (2)

$y =$  \_\_\_\_\_

Reason: \_\_\_\_\_ (2)

3.1.4



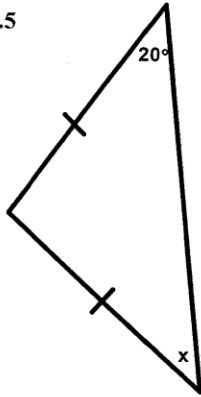
$x =$  \_\_\_\_\_

Reason: \_\_\_\_\_ (2)

$y =$  \_\_\_\_\_

Reason: \_\_\_\_\_ (2)

3.1.5



$x =$  \_\_\_\_\_

Reason: \_\_\_\_\_

(2)

3.2.

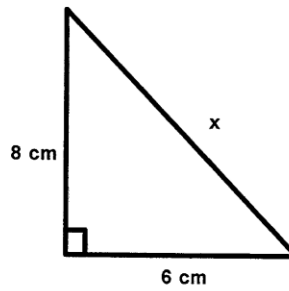
$x^2 = (8)^2 + (\text{---})^2$  Reason: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

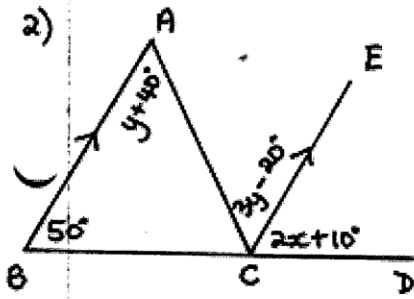
\_\_\_\_\_

\_\_\_\_\_



(3)

3.3



\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

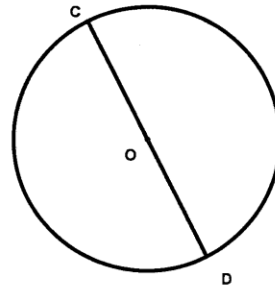
\_\_\_\_\_

\_\_\_\_\_

(6)  
[25]

**QUESTION 4**

**O** is the centre of the circle and **CD**, the diameter of the circle is 12 cm in length.



4.1 Write down the length of the radius.

\_\_\_\_\_

(1)

4.2 Calculate the circumference of the circle

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

(3)

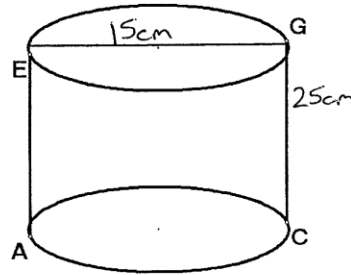
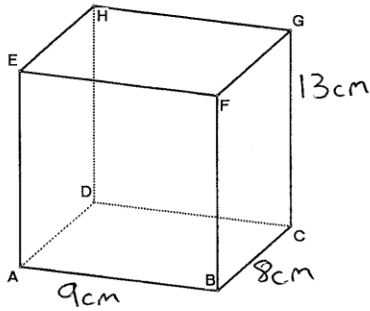
4.3 Calculate the area of the circle.

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

(3)  
[7]

**QUESTION 5: Volume = base area x perpendicular height**

Calculate the volume of each of the following shapes:



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(3)

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(3)

[6]

**QUESTION 6**

6.1 Determine the PERIMETER AND AREA of each of the following:

6.1.1

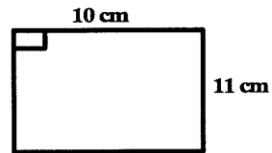
P = \_\_\_\_\_

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A = \_\_\_\_\_

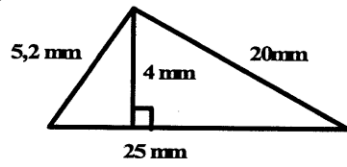
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(4)

6.1.2



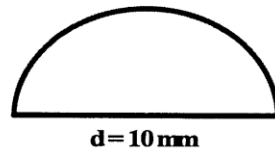
P = \_\_\_\_\_  
\_\_\_\_\_

A = \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(6)

6.1.3

P = \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



A = \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(6)

[16]

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**QUESTION 7**

Each of the following shapes has an area of  $180 \text{ cm}^2$ . Determine the value of the length labeled with a variable.

7.1

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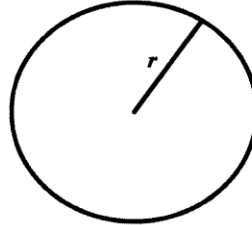
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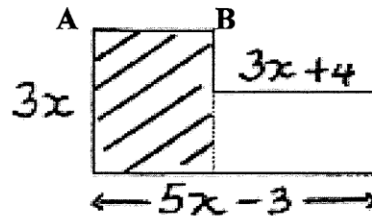


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(3)

7.2

Refer to the diagram alongside.



7.2.1 Determine the length of AB in terms of  $x$ .

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(3)

7.2.2 Find the area of the shaded region in terms of  $x$ , simplify fully.

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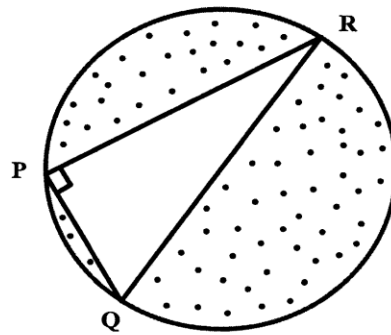
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(3)

7.3 In the diagram, QR is the diameter of the circle.

QR = 10 cm ; PQ = 6cm



7.3.1 Calculate the length of PR

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(3)

7.3.2 Find the area of the shaded region.

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(4)  
[16]