HILLCREST HIGH SCHOOL

MATHS PAPER 2

GRADE 9 **NOVEMBER EXAMINATION 2017**

TIME : 1 HOUR **MARKS : 75**

EXAMINER : MRS SMITH **MODERATOR : MRS WOODROW**

NAME :					CLASS :	
Q1	**Q2**	**Q3**	**Q4**	**total**	**%**	**SYMBOL**
10	**27**	**16**	**22**	**75**	**100**	

PAPER 1	PAPER 2	TOTAL	%	SYMBOL
130	75	205	100	

INSTRUCTIONS TO CANDIDATES

1. This paper consists of 4 questions.
2. Answer all the questions in the space provided.
3. All calculations must be shown clearly.
4. A non- programmable calculator may be used.
5. Final answers must be rounded off to two decimal places, unless stated otherwise.
6. Indicate units of measurement where applicable.
7. Write neatly and legibly.

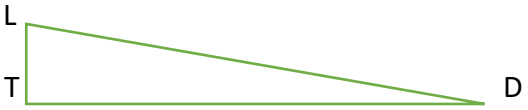
ANSWER GRID FOR QUESTION 1

1.1	1.2	1.3	1.4	1.5

QUESTION 1 : MULTIPLE CHOICE [5 x 2 = 10]

For each question **1.1 – 1.5** there is only one correct answer.
Write only the letter **A-D** that corresponds to the answer on the grid provided at the end of the question.

1.1 Triangle LTD is a right – angled triangle



Which of the following statements is true?

A. $LD^2 = TD^2 - LT^2$ B. $LT^2 = LD^2 - TD^2$
C. $TD^2 = LD^2 + TD^2$ D. $LT^2 = LD^2 + TD^2$

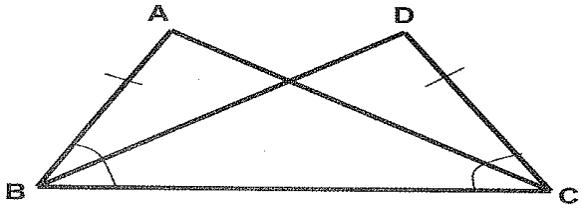
1.2 Which set of quadrilaterals have perpendicular diagonals?

A. square, rhombus and kite B. square, rectangle and parallelogram
C. square, rhombus and rectangle D. square, rhombus and parallelogram

1.3 A cube has sides of 6cm. The total surface area of the cube is :

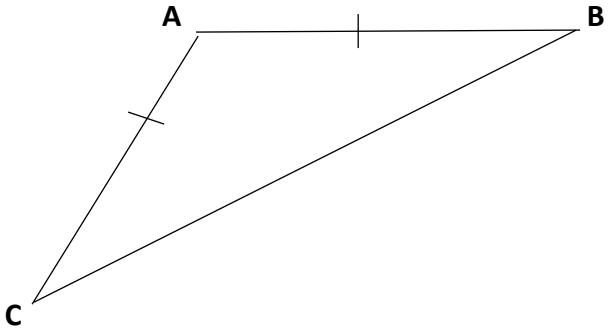
A. 36 cm^3 B. 72 cm^3
C. 108 cm^3 D. 216 cm^3

1.4 In the triangles below, $A\hat{B}C$ is equal to $D\hat{C}B$.
Why is $\Delta ABC \equiv \Delta DCB$?



A. A ; A ; A B. R ; H ; S
C. S ; S ; S D. S ; A ; S

1.5 What size are $\widehat{A}$ and $\widehat{B}$ in the triangle drawn below if $A\widehat{C}B = 42^o$?



A. $\widehat{A} = 42^o$ and $\widehat{B} = 96^o$

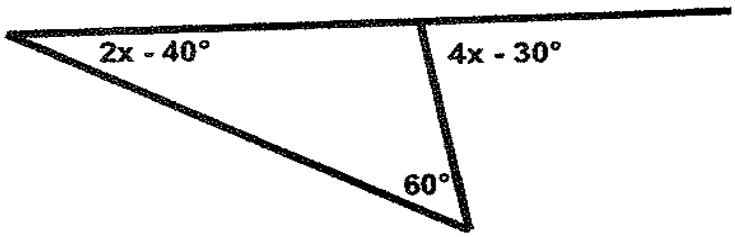
B. $\widehat{B} = 69^o$ and $\widehat{A} = 69^o$

C. $\widehat{A} = 96^o$ and $\widehat{B} = 42^o$

D. $\widehat{B} = 42^o$ and $\widehat{A} = 90^o$

QUESTION 2

2.1 Determine, with reasons, the value of x in the figure below. (3)



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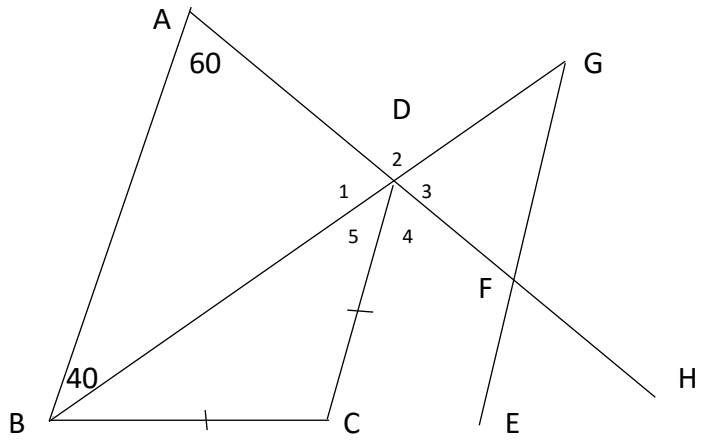
2.2 In the figure below, $\mathbf{AB // CD // GE}$; $\mathbf{\hat{A} = 60^o}$; $\mathbf{A\hat{B}D = 40^o}$; $\mathbf{BC = CD}$

Calculate the size of each of the following angles, and give reasons for your answers.



2.2.1 $\hat{G}$ (2)

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2.2.2 $\hat{D}_1$ (3)

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2.2.3 $\hat{D}_2$ (2)

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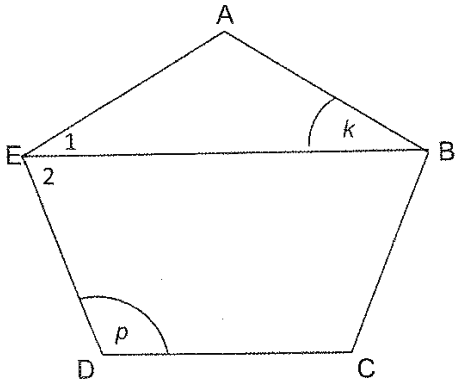
2.3 ABCDE is a regular polygon



2.3.1 What **type** of polygon is ABCDE? _____ (1)

2.3.2 What is the value of p? _____ (3)

_____

_____

2.3.3 Calculate, with reasons, the size of k. (5)

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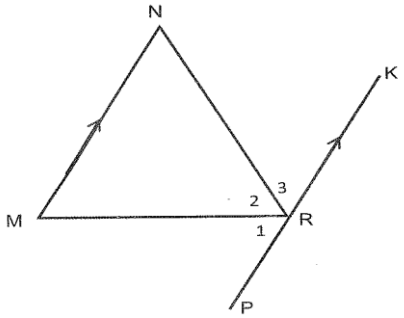
2.4 In the diagram below, NM = NR ; NM // PK and $\widehat{R}_1 = 65^o$



2.4.1 What type of triangle is ΔNMR? _____ (1)

2.4.2 Determine, with reasons, the size of $\widehat{M}$ (2)

_____

_____

2.4.3 Determine, with reasons the size of $\widehat{R}_2$ (2)

_____

_____

_____

2.4.4 Calculate, with reasons, the size of $\widehat{R}_3$ (3)

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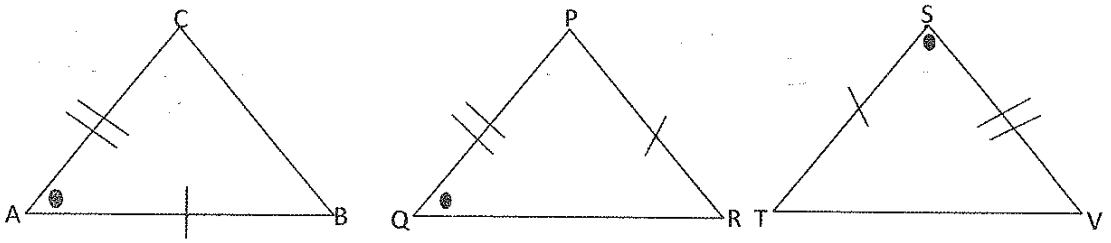
QUESTION 3

3.1.1 State which triangle is congruent to ΔABC , and give a reason. (2)



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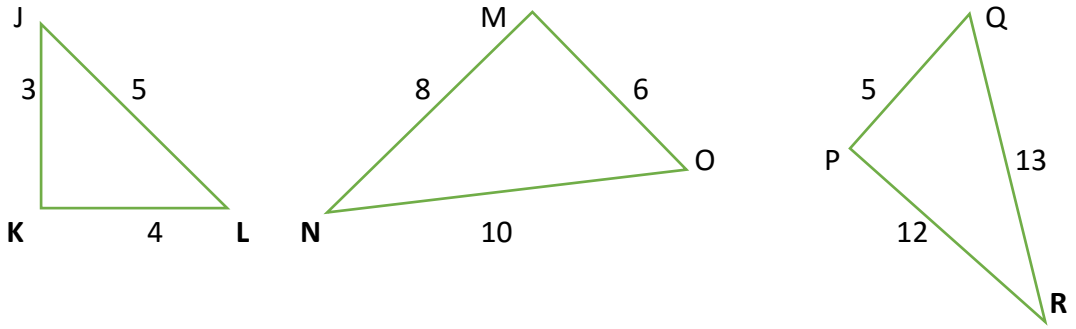
3.1.2 State which triangle is similar to Δ JKL , and give a reason. (2)



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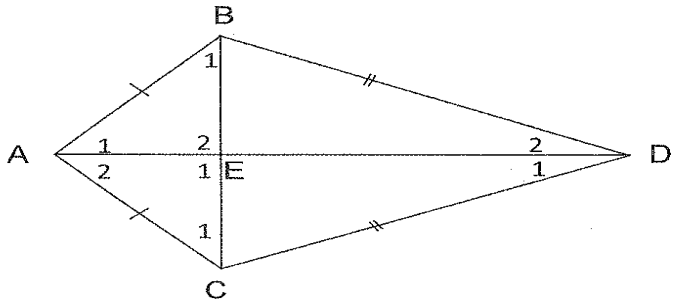
3.2 The figure below, AB = AC and BD = CD



3.2.1 What type of quadrilateral is figure ABDC ? (1)

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3.2.2 What type of triangle is Δ CED ? (1)

_____

3.3 Prove that Δ ABD ≡ Δ ACD (6)

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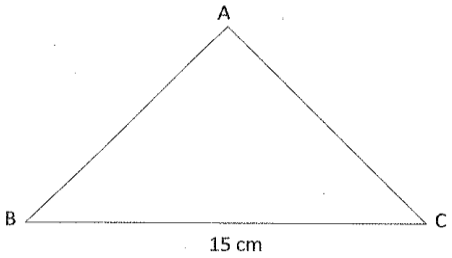
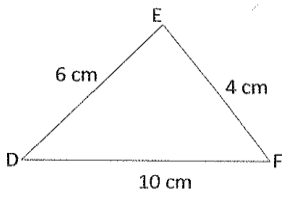
3.4 Calculate the length of AB if Δ ABC lll Δ EDF (4)





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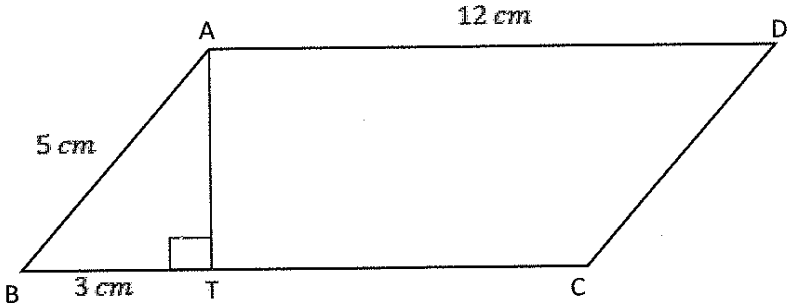
QUESTION 4

4.1 In parallelogram ABCD , AB = 5 cm , AD = 12 cm , BT = 3 cm and AT ⊥ BC .



Calculate

4.1.1 the length of AT. (4)

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_____

4.1.2 the perimeter of trapezium ADCT. (2)

_____

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4.1.3 the area of trapezium ADCT. (3)

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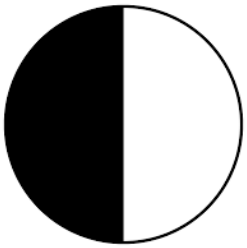
4.2 The shaded area of the circle in the diagram is 25, 13 cm^2.



4.2.1 Calculate the diameter of the circle. (4)

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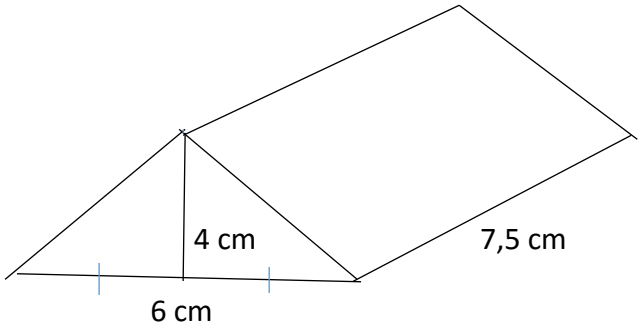
4.3 The triangular prism drawn below is 6 cm wide ; 7,5 cm long and has an altitude (height perpendicular to the base) of 4 cm.



4.3.1 Calculate the volume of the prism. (3)

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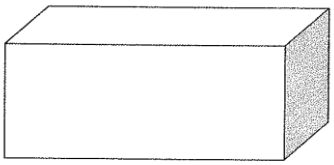
4.4 The rectangular prism below has the following dimensions :

length = 7,2 cm : breadth = 5 cm : height = 3,32 cm



Calculate

4.4.1 the volume of the rectangular prism. (3)

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4.4.2 the total surface area of the rectangular prism. (3)

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[22]

TOTAL [75]

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