HILLCREST HIGH SCHOOL

HILLCREST HIGH SCHOOL
INTERNAL ASSESSMENT

GRADE 9

MATHEMATICS P2

TERM 4

November Examination

MARKS : 80 **TIME :** 1½ HOURS

NAME : _____

WOODROW	JUGMOHAN	ALBOROUGH	MACTAVISH	BADENHORST	OOSTHUIZEN
EXAMINER	MODERATOR				

This question paper consists of 12 pages.

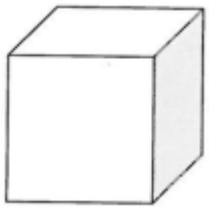
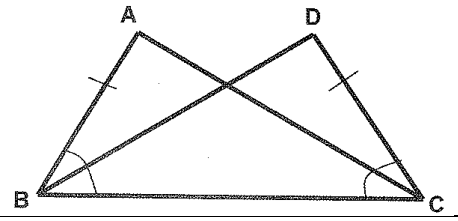
QUESTION	1	2	3	4	5	6	TOTAL
MARK	10	20	13	13	9	15	80

INSTRUCTIONS AND INFORMATION

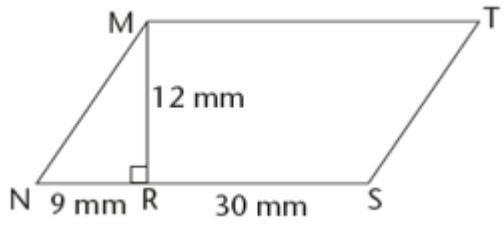
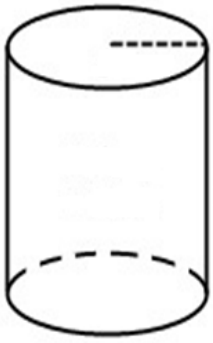
Read the following instructions carefully before answering the questions.

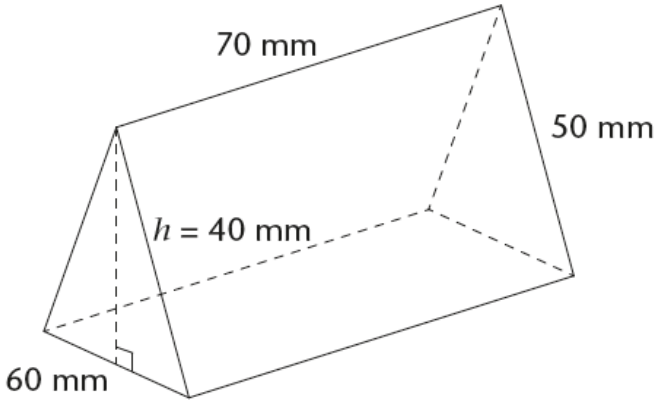
1. This exam consists of **6** questions.
2. Answer ALL the questions in the space provided.
3. Clearly show ALL calculations, diagrams, graphs, etc. which you have used in determining your answers.
4. Answers only will NOT necessarily be awarded full marks.
5. You may use an approved scientific calculator (non-programmable and non-graphical), unless stated otherwise.
6. When working in measurement, use π on your calculator.
7. If necessary, round off answers correct to TWO decimal places, unless stated otherwise.
8. Diagrams are NOT necessarily drawn to scale.
9. Write neatly and legibly.

QUESTION 1

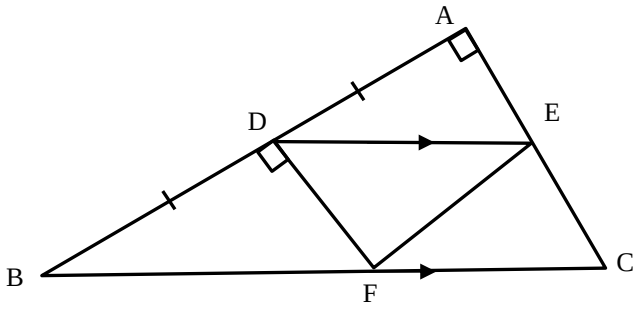
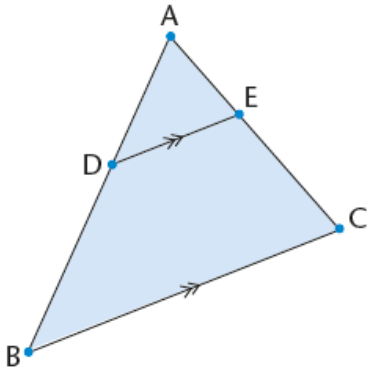
1. **Multiple Choice** – Circle the correct answer			
	1.1.	The Volume of a cube below whose height is 4cm is	(2)
			
		A) 8 cm^3 B) 16 cm^3 C) 32 cm^3 D) 64 cm^3	
	1.2.	In the triangles below, ABC ≡ DCB, identify the reference	(2)
			
		A) AAA B) RHS C) SSS D) SAS	
	1.3.	The following set of test scores are out of 150 marks 124 130 123 130 112 124 125 136 125 The median is :-	(2)
		A) 123 B) 122 C) 125 D) 112	
	1.4.	Which reference is incorrect for Congruency?	(2)
		A) SAA B) SSA C) SSS D) RHS	
	1.5.	Pairs of socks are neatly packed in a drawer of a wardrobe. There are 4 pairs of black socks, 2 pairs of blue socks, 3 pairs of yellow socks and 5 pairs of white socks. One pair of socks is taken from the drawer without looking what is the probability of **not** taking a pair of white socks?	(2)
		A) 5 B) $\frac{5}{14}$ C) $\frac{9}{14}$ D) $\frac{5}{9}$	
			[10]

QUESTION 2

2. **Measurement** –			
	2.1.	MNST is a parallelogram. NR=9mm and MR=12mm	
			
	2.1.1.	Calculate the perimeter of MNST	(4)
	2.1.2.	Calculate the area of $MNST$	(3)
	2.2.	The Volume of a cylinder is 905cm.	
	2.2.1.	Calculate the radius if the height is 18cm.	(4)
			
	2.2.2.	Calculate the circumference of the circular base.	(3)

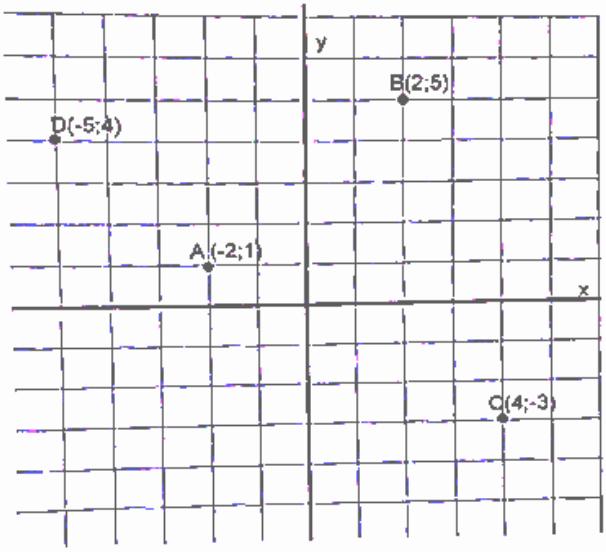
	2.3.	In diagram isosceles triangular prism is given $l = 70mm\ \ b = 60mm\ \ h$ of prism $40mm$ and side length is $50mm$	
	2.3.1.	Calculate the Surface area of the prism shown below	(6)
			
			[20]

QUESTION 3

3. **Congruency and Similarity** –			
	3.1.	In the following figure $DE//BC$ and $AD = BD$	
			
	3.1.1.	Prove that $\Delta ADE \equiv \Delta DBF$	(5)
	3.2.	Consider the triangles below. DE // BC. Prove that ΔABC /// ΔADE.	(5)
			

	3.2.1.	If it is further given that AD=3cm and AB=12cm Calculate DE if BC=20cm	(3)
			[13]

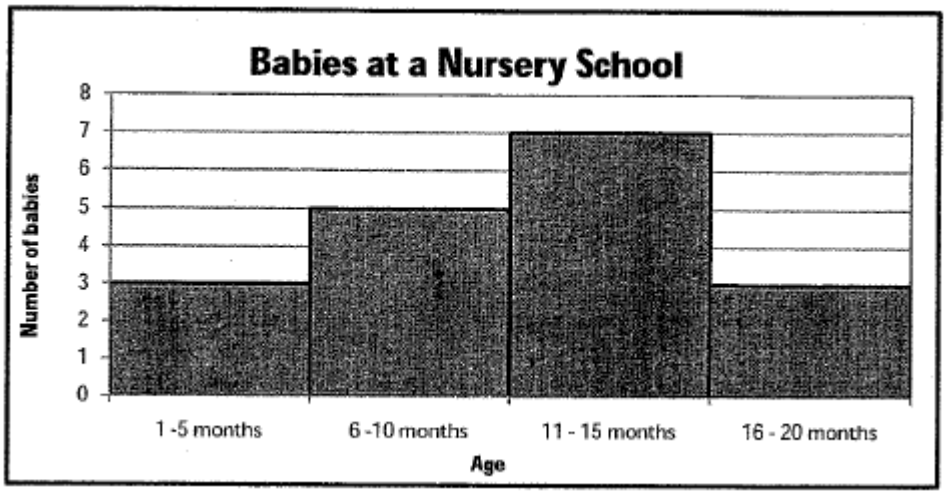
QUESTION 4

4. **Transformation** –			
	4.1.	Given the following points $A(-2;1), B(2;5), C(4;-3)$ and $D(-5;4)$.	
			
	4.1.1.	Determine the gradient of the line passing through points 'A' and 'B'	(3)

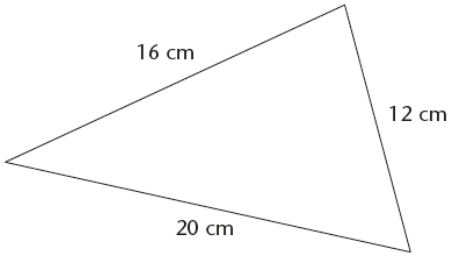
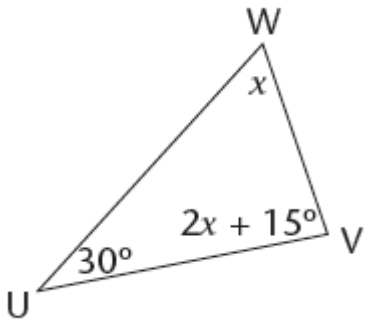
	4.1.2.	Describe in terms of 'x' and 'y' the movement from point 'C' to point 'D'.	(2)
	4.1.3.	Sketch the graph represented by $y = -3x + 3$ on the grid given in 4.1 above. Show all working in the space provided below to show the intercepts with the x-axis and y-axis.	(5)
	4.1.4.	Determine the equation of the line perpendicular to the line given in 4.1.3 and passing through $(3; 6)$	(3)
			[13]

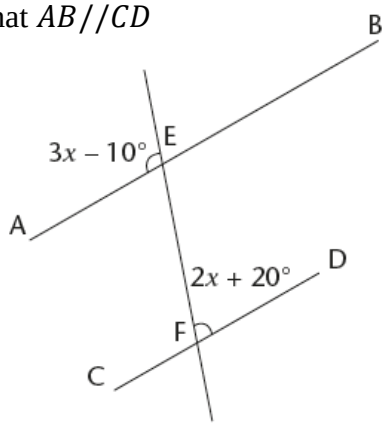
QUESTION 5

5. **Data Handling (Statistics)** – Answer the following questions :-			
	5.1.	The following data represents the number of people who visited a farm stall during December over a 10 day period. 18 20 22 23 ***A*** 30 35 40 42 ***B***	
	5.1.1.	If the median of the data is 27, determine the value of ***A*.**	(2)
	5.1.2.	If the range of the data is 28, Determine the value of ***B*.**	(2)
	5.1.3.	Determine the mean of the data.	(2)

	5.2.	The following histogram represents the ages (in months) of babies at a nursery school.	
			
	5.2.1.	How many babies are younger than 16 months?	(2)
	5.2.2.	What is the modal class of the data?	(1)
			[9]

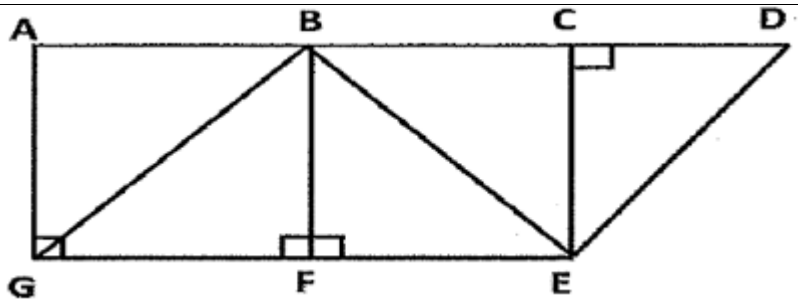
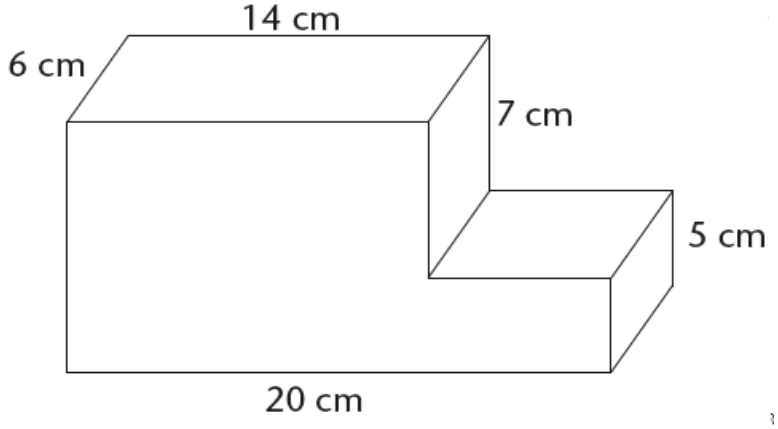
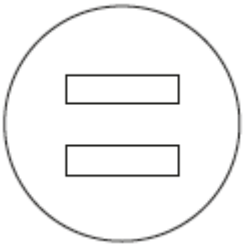
QUESTION 6

6. **Geometry** : Give reasons for all your statements			
	6.1.	Show that the following Triangle is a right angled triangle using calculations.	(3)
			
	6.2.	In the following, Calculate x.	
	6.2.1.		(4)

	6.2.2.	Given that $AB//CD$  	(5)
	6.3.	Camelia swims across a river but with the flow she actually swims diagonally across as the river flows completely straight. If Camelia swam a total of 55m across the river to a point on the bank 28m downstream from the point directly opposite her, how wide is the river? Give your answer correct to one decimal place. (Hint : Draw yourself a diagram)	(3)
			[15]

GRAND TOTAL **[80]**

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

		QUESTIONS NOT ASKED	
	6.4.	In the figure below $AD//GE,\ AB = BC = CD,\ AB = 3cm$ and $AG = 4cm.$	
			
	6.4.1.	Calculate the length of BE	(2)
	6.4.2.	Calculate the perimeter of ΔCED	(2)
	6.4.3.	Calculate the area of ΔGBE	(3)
	6.4.4.	Calculate the area of the trapezium ADEG	(3)
	6.4.5.	Calculate the area of the parallelogram BDEG	(3)
	6.5.	The outside of a cylindrical structure at a factory must be painted. It's radius is 3.5m and its height is 6,5m. How many litres of paint must be bought if 1 litre covers $10m^2$?	(5)
	6.6.	Calculate the Volume of the figure shown below.	(4)
			
	6.7.	A button is made in the shape of a circle, with two congruent rectangles cut out, as shown in the diagram. The diameter of the button is 25 mm and the dimensions of each rectangle are 12 mm by 3 mm. Calculate the area of the top surface of the button. Giving your answer in square centimetres.	(5)
			

	6.8.	The heights of 13 people is given in the data set below :-	(4)
	6.8.1.	Draw up an ordered Stem and Leaf diagram in the space provided. Showing all relevant information	
		<table><tr><th>Person</th><th>Height</th></tr><tr><td>Cilla</td><td>162</td></tr><tr><td>Meshack</td><td>162</td></tr><tr><td>Tony</td><td>160</td></tr><tr><td>Ellen</td><td>170</td></tr><tr><td>Karin</td><td>170</td></tr><tr><td>Sibongile</td><td>185</td></tr><tr><td>Gabriel</td><td>173</td></tr><tr><td>Alpheus</td><td>178</td></tr><tr><td>Mfiki</td><td>188</td></tr><tr><td>Nathi</td><td>182</td></tr><tr><td>Manare</td><td>192</td></tr><tr><td>Khanyi</td><td>184</td></tr></table>	
	6.8.2.	Determine the median of the data.	**(3)**

Gr9 November P1 Exam breakdown	
Topic	**Marks**
Multiple choice	**10**
Algebra - Algebra and Scientific Notation **- Factorising** **- Equations**	**23** **17** **22**
Number Patterns	**9**
Ratio, Distance speed and time	**16**
Finance	**17**
Probability	**6**
Total	**120**

Gr9 November P2 Exam breakdown	
Topic	**Marks**
Multiple choice	**10**
Measurement	**20**
Congruency and Similarity	**13**
Transformation and graphs	**13**
Data Handling	**9**
Geometry	**15**
Total	**80**

