HILLCREST HIGH SCHOOL

GRADE 11 **JUNE EXAMINATION 2014**

MATHS LITERACY
PAPER 2

TIME : 1½ HOURS **MARKS : 75**

EXAMINER : MRS WOODROW
MODERATOR : MRS LEUSCHKE

INSTRUCTIONS TO CANDIDATES

1. This paper consists of 3 questions.

2. Answer ALL questions.

3. **ALL CALCULATIONS MUST BE SHOWN CLEARLY**.

4. An approved calculator (non-programmable and non-graphical) may be used unless stated otherwise.

5. All final answers must be rounded off correct to **TWO decimal places** unless stated otherwise.

6. Indicate units of measurement, where applicable.

7. Start each question on a **NEW PAGE**.

8. Write neatly and legibly.

1 QUESTION 1

1.1 Simplify the following : (Show all your calculations)

1.1.1 If it costs R 629,10 to fill up a car with a tank capacity of 45lt. How much does it cost per litre of petrol? (2)

1.1.2 A fridge cost R8 598,00 after the price has been increased by 15%.
Calculate the price of the fridge before the increase. (3)

1.1.3 Potatoes cost R16,95 per kilogram, calculate the cost of 2,5kg of potatoes. (2)

1.1.4 A 20% discount is offered on a pair of jeans which costs R699,00. How much does the pair of jeans cost after the discount. (3)

1.1.5 A train leaves at 20:05 and arrives at its destination at 5:35 in the morning the following day. How long does the train journey last? (3)

1.1.6 The rate per hour at work is R52,50. What would be the new rate per hour after the annual increase of 7,5%? (3)

1.1.7 If an object is 4,75m wide x 9,5m long and the scale factor is 1:120. What would the drawn dimensions be. Write your answer in cm and round off to 2 decimal places. (4)

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2 QUESTION 2

The cost of electricity in South Africa has increased drastically over the past two years.

Individual households are charged according to the number of kilowatt hours (kWh) of electricity used. Households using more electricity are charged a higher rate per kWh than those using less electricity.

TABLE 1 : below shows the average monthly increases in the cost of electricity (excluding VAT of 14%) between 2011 and 2012.

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	AVERAGE MONTHLY USAGE IN kWh				
	50	**150**	**600**	**1000**	**1500**
Amount payable in 2011	R 27,35	R 85,83	R 393,67	R 728,63	R 1 147,33
Amount payable in 2012	R 28,83	R 94,99	R 467,43	R888,83	**C**
Increase between 2011 and 2012	R 1,48	R 9,16	**A**		
Percentage increase between 2011 and 2012	5,39%	10,67%	18,74%	**B**	23,38%
NOTE : VAT is value-added tax.					

Source : www.eskom.co.za

2.1 During 2012, the Pillay family used an average of 600kWh of electricity per month and the Govender family used an average of 150kWh of electricity per month

Use TABLE 1 above to calculate the difference in the cost per kWh that the Pillay and the Govender family are charged.

a) What is the rate/kWh of the Pillay Family in 2012. (2)

b) What is the rate/kWh of the Govender Family in 2012. (2)

c) What is the difference of the rates that the two families have to pay. (Give your answer in cents) (2)

2.2 Determine the missing values A, B and C. (Correct to 2 decimal places) (2 x 2)
(1 x 3)

The following formula may be used :

Percentage increase between 2011 and 2012

$$= \frac{\text{Amount payable in 2012 - Amount payable in 2011}}{\text{Amount payable in 2011}} \times 100\%$$

2.3 Mrs Subramoney used an average of 1000 kWh of electricity per month.

2.3.1 Determine the total annual increase, excluding VAT, of her electricity bill between 2011 and 2012. (2)

2.3.2 How much would the increase be including VAT? (2)

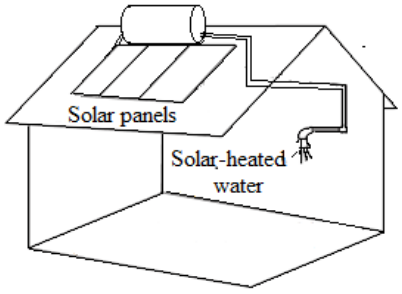
To reduce her electricity bill, Mrs Subramoney decides to install a solar geyser on the roof of her house.

The solar geyser consists of rectangular solar panels and a cylindrical storage tank as shown in the diagrams.

The solar panels use sunlight to heat the water stored in the cylindrical tank. The heated water can then be used in the house.

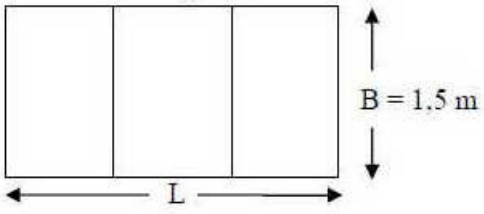
There are altogether six people in Mrs Subramoney household.

Cylindrical storage tank

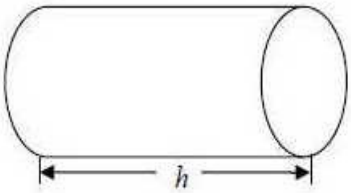


(1 lt = 1000 cm^3)

Solar panels



Cylindrical hot water tank



You may use the following formulae:

Area of a rectangle = length × breadth

Volume of a cylinder $= \pi \times r^2 \times h$ where r = radius, h = height and using $\pi = 3,14$

2.4 Mrs Subramoney was told that she needed solar panels with an area of 2m^2 for the first two members in her household and thereafter an area of 0,7 m^2 for each additional member.

(a) Determine the total length (L) of the solar panels needed by Mrs Subramoney if the breadth (B) is 1,5m. (4)

The hot water tank on the roof has a volume of 150lt and a height (h) of 1,2m.

(b) What is the volume of the geyser in cm^3? (1)

(c) Convert 1,2m to cm. (1)

(d) Calculate the length of the radius of the tank. (Give your answer in cm and round off to the nearest whole number.) (3)

2.5 Jake's plumbers and electricians normally charge R 12 490 to supply and install the solar geyser. They offered a discount of 40% on the type of geyser Mrs Subramoney ordered.

Mrs Subramoney currently pays an average of R 888,83 per month for electricity. She calculated that 45% of her electricity usage is for water heating.

She states that if she can save 45% on her monthly electricity bill, she will be able to recover the cost of the solar geyser within two years.

(a) How much is the cost of the geyser (including the discount)? (3)

(b) Calculate 45% of her monthly electricity cost. (2)

(c) If she could save this amount every month, how many months would it take her to recover the cost of the solar geyser? (2)

(d) Was she correct in her predictions, give a reason for your answer (2)

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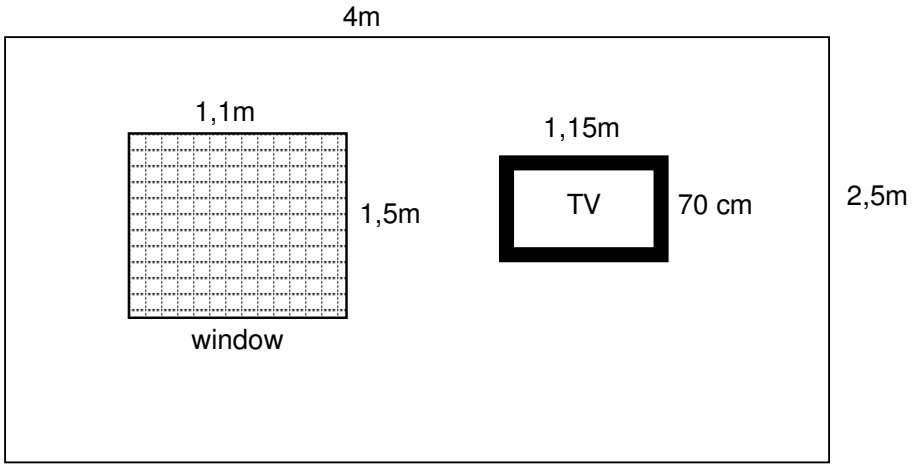
3 QUESTION 3



In the above diagram you will find a wall of a house with a window and the owner would like to wall mount his new flat screen TV.
The wall is 4m wide and 2,5m high. The window is 1,1m long and 1,5m high.
The TV is 1,15m long and 70cm in height

3.1 If the window starts 76cm away from the left side of the wall how much wall space remain on the right side of the window? (2)

3.2 If the TV should be in the middle of the wall to the right of the window, how much space should be on either side of the TV set? (3)

3.3 The top of the TV needs to be 1,8m above the ground. How high will the bottom of the TV set be from the ground? (2)

3.4 What is the distance between the top of the TV and the ceiling? (2)

If the owner needs to repaint the wall before mounting the TV

3.5 Show that the painted area of the wall is 16.7m^2, if 2 coats of paint are required. Show all working neatly and clearly. (7)

3.6 If a 1lt paint covers 10m^2, how many tins would the owner have to buy? (2)

3.7 If this paints costs R425,95/lt, how much will it cost him to paint his wall (2)

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GRAND TOTAL **[75]**