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GRADE 12 MATHS LITERACY
PAPER 2

NOVEMBER 2012

TOTAL: 150

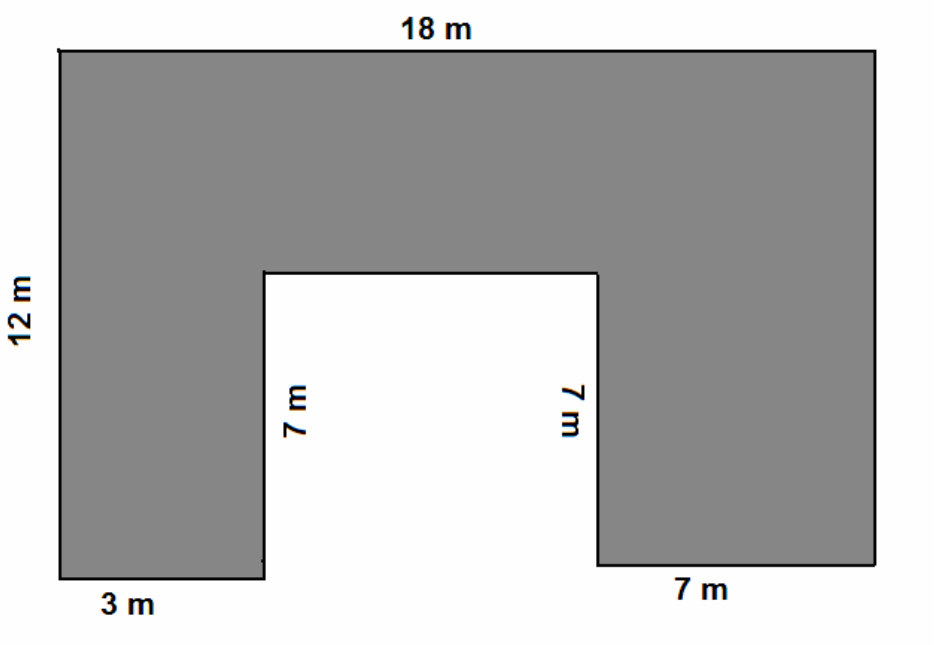
TIME: 3 HOURS

INSTRUCTIONS

1. This question paper consists of 8 questions. Answer all the questions.
2. Number the answers correctly according to the numbering system used in this question paper.
3. An approved calculator (non-programmable and non-graphical) may be used, unless stated otherwise.
4. All calculations must be clearly shown.
5. All the final answers must be rounded off to two decimal places, unless stated otherwise.
6. Units of measurement must be indicated where applicable.

QUESTION 1:

1.1 The grey area as indicated in the sketch below needs to be tiled. Tiles that will be used are 30 cm by 30 cm and cost R59,99 per 0.81 m^2.

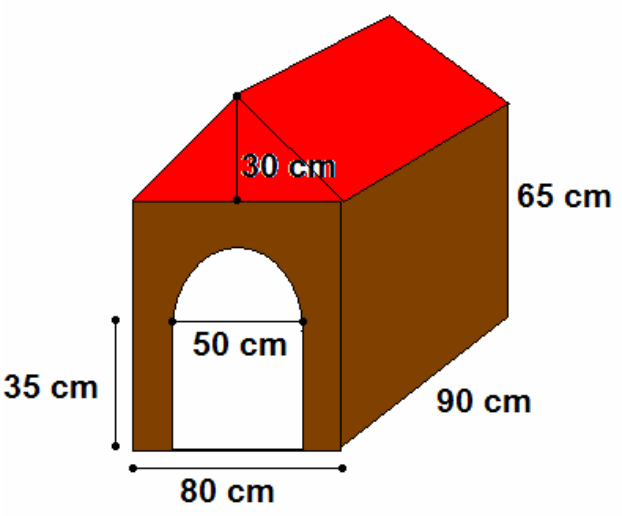


1.1.1 Calculate the area (in m^2) that needs to be tiled. (Area = L x B) (4)

1.1.2 Calculate the number of tiles needed to tile this area. (3)

1.1.3 Determine the cost of the tiles. (4)

1.2 In the diagram the dimensions of a dog kennel are given.



Peter wants to paint the roof of the kennel red. To buy the right amount of paint he needs to calculate the area of the roof.

1.2.1 **Calculate the slanted side of the triangle by using the theorem of Pythagoras.** **(2)**

1.2.2 **Calculate the total area (in m^2) of the roof.** **(3)**

1.2.3 **Red paint is bought in one litre containers which cover 1 m^2. Determine how many one litre containers he needs to buy for the roof.** **(2)**

1.2.4 **The cost of one litre of red paint is R14,35 (14% VAT exclusive). Calculate the cost of the red paint.** **(4)**

1.2.5 **Calculate the total amount of wood (in m^2) that is needed to build the bottom part of the kennel before cutting the opening.** **(3)**

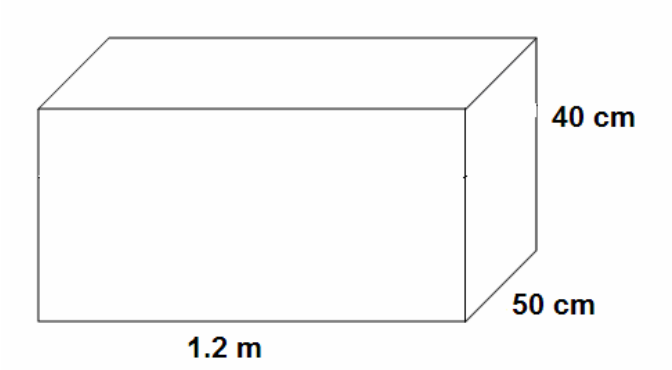
1.2.6 **Calculate the area of wood that was removed to make the front opening.** **(4)**

1.2.7 **The dimensions of the sheet of wood are 2 m x 2 m. Calculate (in m^2) how much wood will be over after building the dog kennel.** **(3)**

[32]

QUESTION 2:

Mary bought her son an aquarium where he can keep exotic fish. The dimensions are given in the diagram below.



2.1 **How many litres of water can the aquarium hold if 1 000 litre = 1 m^3? (Volume = L x B x H)** **(4)**

2.2 How many litres of water must be put in the aquarium when filled 70%? **(2)**

2.3 The aquarium must be painted with a special sealant on the bottom and at the back. Determine the area that needs to be painted. (Area = L x B) **(5)**

2.4 The sealant costs R29,99(including VAT) per litre and one litre covers 0.5 m^2. What is the cost for the sealant needed? **(4)**

2.5 How much did Mary pay for the fish tank and paint if the tank costs R1250,00 (including VAT)? **(4)**

2.6 The temperature for the water in the tank should be 24^0 C. Convert the temperature to ^{0}F.

(℉ = $\frac{9}{5}$℃ + 32) **(3)**

[22]

QUESTION 3:

3.1 Two workers, John and Peter, are working in a factory but get different remuneration packages.

JOHN	PETER
Basic wage per week is R 450 15 hours per week R55,00 per hour for additional work	Hourly rate is R45,00 15 hours per week R50,00 per hour for additional work

3.1.1 Calculate the wage for John and Peter if they worked an additional 3 hours per week. **(6)**

3.1.2 How many additional work per hour needs to be done by John to earn R780 per week? **(2)**

3.1.3 If Peter gets an increase of 8,2% on his hourly rate, calculate his wage for 15 hours. **(3)**

3.2 Teacher Sue started at a new school and her gross income is R12 465 per month.

3.2.1 Complete the monthly deductions as provided in the given table.

Monthly deductions	Amount
Bond	R4 567

PAYE (Tax) **(Gross salary x 24%)**	**3.2.1.1**
Medical Aid	**R1 200**
Insurance	**R 876**
Pension fund **7% of Gross salary**	**3.2.1.2**

3.2.2 Will she be able to buy clothes for R 1 200? Explain. (3)

3.2.3 After a year teacher Sue received an increase of 5,7%. Calculate her new salary. (3)

3.2.4 Teacher Sue wants to buy a Ford Figo for R 104 000. Interest on the loan is 9% compounded monthly for 5 years. What will the payment be on this car if she paid a deposit of R 65 000?

(4)

Formula: $x = \dfrac{Pi}{[1-(1+i)^{-n}]}$

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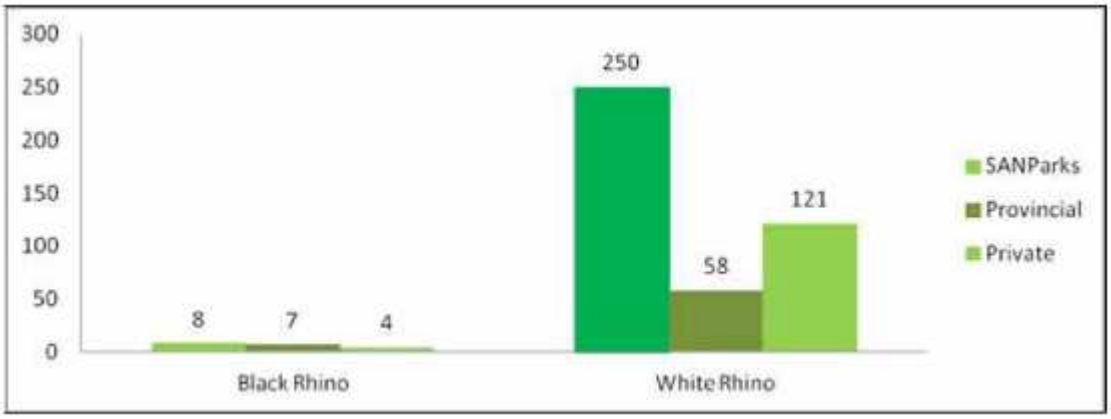
QUESTION 4:

The following information on Rhino poaching was publicised by SAN Parks. Use the given tables to answer the questions.



4.1 How many Rhinos were killed in 2011? (2)

4.2 Determine the percentage white Rhinos that was killed in Private Game Lodges.

(3)

4.3 How many black Rhinos were killed in 2011?

(2)

4.4

4.4.1 **Explain the red arrow above the 2012 bar.** **(2)**

4.4.2 **Determine the average of Rhinos poached from 2000 to 2009.** **(3)**

4.4.3 **Determine the percentage increase in Rhino poaching from 2010 to 2011.** **(4)**

[16]

<u>QUESTION 5:</u>

It is grandma's birthday and her grand daughter baked her a sponge cake.

5.1 **The cake needs to be baked at 180℃. Convert the temperature to ℉.** **(2)**

HINT: ℉ = 1.8 x ℃ + 32

5.2 **The diameter of the baking tin that was used is 20 cm and the height of the tin is 10 cm.**

Calculate the capacity of the baking tin. **(3)**

HINT: Volume = $\pi r^2 \times h$, using $\pi = 3,14$

5.3 **Calculate the area that needs to be covered in icing.** **(4)**

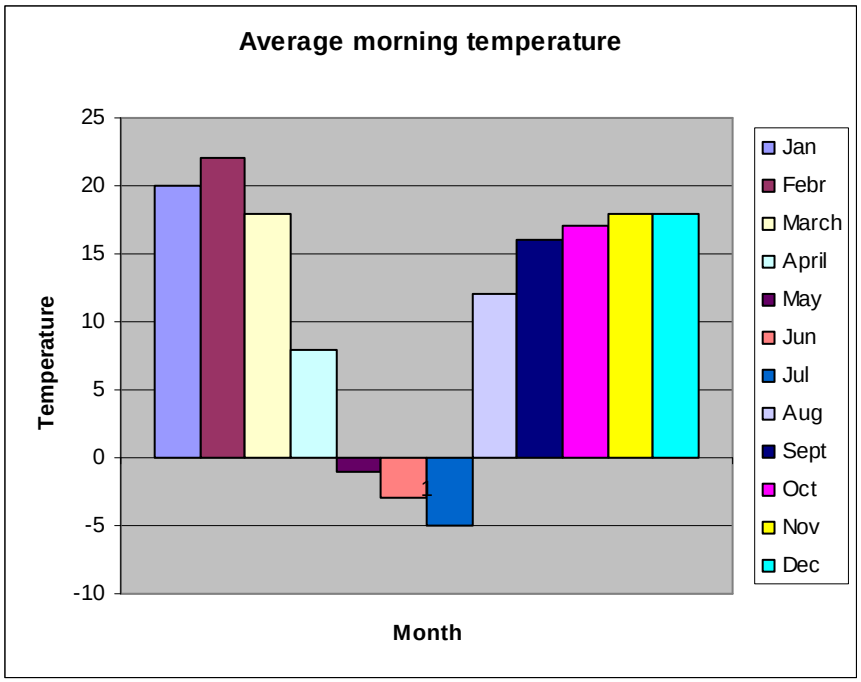
HINT: Area = $2\pi rh + \pi r^2$, $\pi = 3,14$

5.4 **Pre-mixed icing was used to cover the cake. One packet of icing can cover 0.5 m^2 how many packets of icing will be needed to cover the cake?** **(2)**

[11]

QUESTION 6:

The average morning temperature in Bloemfontein has been recorded in the graph below.

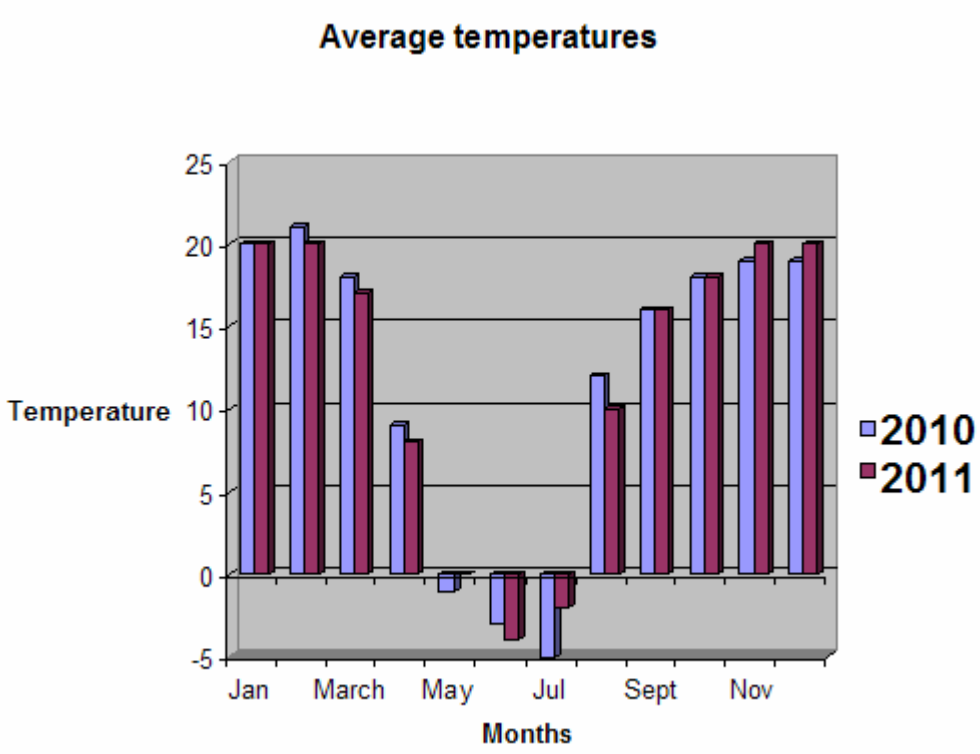


6.1 **During which month was it the coldest in the mornings?** **(2)**

6.2 **During which months were the morning temperature higher than 15°?** **(3)**

6.3 **Calculate the percentage of months that had an average temperature of less than 10°.** **(3)**

6.4 **The next graph shows the average temperatures as recorded in 2010 and 2011.**



6.4.1 In which year was the coldest minimum temperature recorded? **(2)**

6.4.2 During which months were the minimum temperatures the same? **(2)**

[12]

QUESTION 7:

John is a long jump athlete from Power High School in Gauteng. His last 10 jumps were recorded in meter:

5.2; 5.5; 5.85; 6.05; 4.9; 5.4; 5.95; 6.0; 5.5; 5.5

Determine the following:

7.1 The median jump by John during the last 10 jumps. **(3)**

7.2 The distance that is his lower quartile (Q_1). **(2)**

7.3 The distance that is his upper quartile (Q_3). **(2)**

7.4 The interquartile range (IQR) using the formula IQR = $Q_3 - Q_1$ **(2)**

7.5 Determine the average distance John had jumped over these 10 jumps. **(4)**

[13]

QUESTION 8:

8.1 Thabo wants to buy a new car. He has the following choices:

Make	Number of doors	Colour
Nissan (N)	2- door (T)	White (W)
Audi (A)	4 – door (F)	Red (R)
		Grey (G)

8.1.1 Complete a tree diagram showing all the possible outcomes and using the symbols in brackets. **(9)**

8.1.2 How many possible outcomes are there? **(2)**

8.1.3 Calculate the possibility that the car he buys will be red. **(3)**

8.2 There are 4 blue, 5 red, 1 green and 2 black marbles in a bag. Suppose you select one marble at random.

8.2.1 Determine the sample space. **(2)**

8.2.2 Find P(black). **(2)**

8.2.3 Find P(blue or black). **(2)**

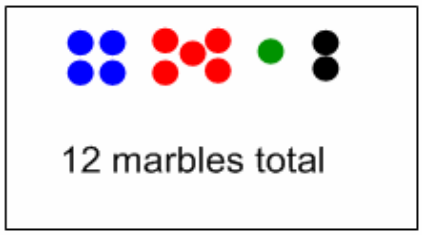
8.2.4 Find P(not purple) **(2)**

[23]

TOTAL: 150

There are 4 blue marbles, 5 red marbles, 1 green marble, and 2 black marbles in a bag. Suppose you select one marble at random. Find each probability.

P(black)
P(blue)
P(blue or black)
P(not green)
P(not purple)



Solution:

Sample Space: 12 — There are 12 marbles total (4+5+1+2 = 12)

Probability = $\frac{\text{\# of ways a certain outcome can occur}}{\text{Total Possible Outcomes (Sample Space)}}$

P(black) = $\frac{2}{12} = \frac{1}{6}$ — There are 2 black marbles in the bag; 12 is your sample space

P(blue) = $\frac{4}{12} = \frac{1}{3}$ — There are 4 blue marbles in the bag; 12 is your sample space

P(blue or black) = $\frac{6}{12} = \frac{1}{2}$ — 4 blue + 2 black = 6; 12 is your sample space

P(not green) = $\frac{11}{12}$ — There's 1 green, so 12-1 = 11 that aren't; 12 is your sample space

P(not purple) = 1 — I will definitely select a marble that is not purple because there are no purple marbles in the bag. Whenever the chance of something occurring is definite, the probability is 1.