



education

Department:
Education
PROVINCE OF KWAZULU-NATAL

**MATHEMATICAL LITERACY
GRADE 12
CONTENT WORKSHOP
TERM 1 2020**

INSTRUCTIONS AND INFORMATION



1. This question paper consists of **FOUR** questions. Answer **ALL** the questions.
2. Use ANNEXURE A to answer QUESTION 4
3. Number the answers correctly according to the numbering system used in this question paper.
4. Start **EACH** question on a **NEW** page.
5. An approved calculator (non-programmable and non-graphical) may be used, unless stated otherwise.
6. **ALL** the calculations must be clearly shown.
7. Round off **ALL** final answers appropriately according to the given context unless stated otherwise.
8. Units of measurement must be indicated where applicable.
9. Write neatly and legibly.

QUESTION 1

In the fishing industry, and especially for recreational fishing (fishing for fun), there are some species of fish that have limitations on the size and the number of fish that one may catch per day. The limit in terms of the number of fish that one person may catch daily is called the bag limit. TABLE 1 below shows some of the species of fish with their minimum sizes and bag limits.

TABLE 1: Species of fish

Species of fish	Min. size	Bag limits
Common name		
Anchovies	None	None
Bronze bream (bluefish)	30 cm	2
Cape knifejaw	None	5
Galjoen	35 cm	2
Hottentot	22 cm	10
Pinky (piggy)	7,5 cm	10
Scotsman	40 cm	1



[Source: <<http://www.daff.gov.za/>>]

Use the information above to answer the questions that follow:

- 1.1. Which species of fish has the least bag limit? Why do you think that this species of fish has the least bag limit? (3)
- 1.2. The KwaZulu -Natal Parks Board is responsible for ensuring that these limitations on the specific species are adhered to. The Parks Board does this by issuing fines to fishermen who do not abide by these rules. The fine is R500 for the first fish caught that exceeds the bag limit and a further R250 for every fish thereafter.
 - 1.2.1. Write down an equation that will represent the relationship between the number of fish caught over the limit and the cost of the fine. Let C be the total cost of the fine and n the number of fish caught over the bag limit. (3)
 - 1.2.2. Determine the amount a fisherman would be fined if he caught 7 galjoen. (2)
 - 1.2.3. The fisherman needs to get money to pay his fines. If he sells the 7 fish he caught for R240 each, will he have enough money to pay his fines? Justify your answer with calculations (2)

1.3.

In a paper published in Nature Communications, researchers found that while the quantity of fish caught annually reached its peak in 1996, that peak was much higher than originally thought. Instead of pulling out 86 million tons of fish that year, we actually took 130 million tons of fish out of the oceans. Since then, those numbers have gone down.

Officially, the quantity of fish caught globally has declined by 1.2 million tons each year since the 1996 peak, but the paper's authors found that actually, we've only been reducing that massive number by 0.38 million tons per year.

[Source: <www.popsci.com>]

Use the figures given to complete the table below:

QUANTITY OF FISH CAUGHT ANNUALLY (TONNES)		
YEAR	OFFICIAL	ACTUAL
1996	86 000 000	130 000 000
1998		

(4)
[14]

QUESTION 2



The South African Mint produces, besides the country's currency, collectible gold coins, called Krugerrands. There are four coins of different sizes, according to weight, in the Classic Gold Proof Collection. Below are the coins with their weight, diameter and cost.

			
1 OZ FINE GOLD	1/2 OZ FINE GOLD	1/4 OZ FINE GOLD	1/10 OZ FINE GOLD
32 mm	27 mm	22 mm	16,5 mm
R31 600	R14 500	R7 900	R3 800

[Source: <www.samint.co.za>]

NOTE: 1oz = 0,0625lb

1g = 0,0022lbs

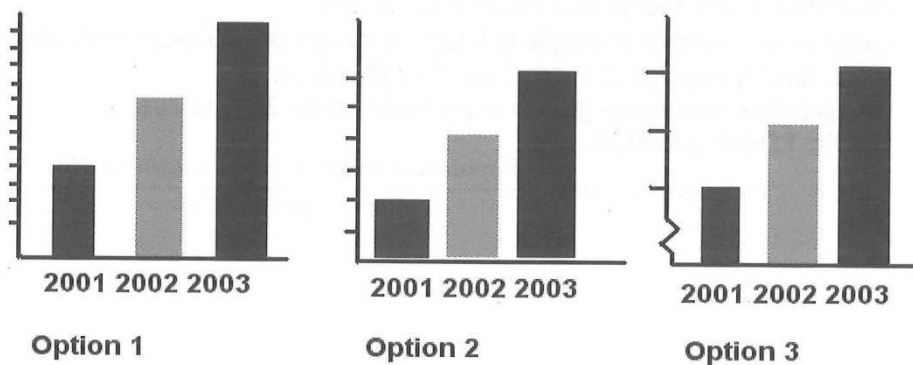
- 2.1. Determine the weight of the one-tenth of an ounce (oz) Krugerrand in grams. (4)
- 2.2. Verify, showing ALL calculations, whether the ratio of the weight to cost is the same for the one-tenth of an ounce (oz) coin and the 1 ounce Krugerrand. (5)

- 2.3. The cost of the 1 oz Krugerrand is R31 600 including VAT. If VAT is charged at 15%, determine what the cost of the coin is excluding VAT. Round your answer to the nearest ten cents.

(2)
[11]

QUESTION 3

- 3.1. A newly appointed accountant started work at XYZ Company. He drew the three graphs below to represent the company's profits over three years. He was not sure which of the graphs would best illustrate the company's performance. Study the graphs below which represent the same information and answer the questions that follow:



- 3.1.1. The graphs above show the same profits, but each graph looks different. Give one reason for the difference (2)
- 3.1.2. If the scale on the y-axis for option 2 is 1 unit representing R10 500, determine the total profit made during 2003 (2)
- 3.1.3. Which graph should the accountant present to the managing director? Give a reason for your answer (3)
- 3.2. Ms Biyela, a Mathematical Literacy teacher, wrote the following information relating to five values on a chalkboard:
- A set of five values in which the mean, median and mode have the same values
 - The lowest number is 5
 - The range is 7
 - The number 9 is the only repeated number.
- Use the information above to write down the 5 values in ascending order. (5)

[12]

QUESTION 4

Peter who is 52-year-old is an employee at a Research Company. He earned an annual income of R338 000 for the 2018/2019 tax year including bonus.

- He contributes 7,5% of his basic salary to the pension fund.
- He is also donating R46 800 per annum to the registered charity organisation, **the donation is tax deductible.**
- He contributes R4 550 to the medical aid monthly, for himself and his 2 children.
- **ANNEXURE A** is a tax table for individuals tax year: March 2018 – February 2019

Use **ANNEXURE A** to answer the following questions.

- 4.1 Show, using calculations, that his taxable income is R267 800,00. (5)
- 4.2 Determine his annual medical credits. (3)
- 4.3 Hence, calculate his annual income tax. (5)
- [13]

ANNEXUREA : QUESTION 4.

TAX TABLE FOR INDIVIDUALS: FOR THE TAX YEAR:MARCH 2018 – FEBRUARY 2019	
Taxable income in ZAR	Tax rate in ZAR
0 – 195 850	18% of taxable income
195 851 – 305 850	35 253 + 26% of taxable income above 195 850
305 851 – 423 300	63 853 + 31% of taxable income above 305 850
423 301 – 555 600	100 263 + 36% of of taxable income above 423 300
555 601 – 708 310	147 891 + 39% of of taxable income above 555 600
708 311 – 1 500 000	207 448 + 41% of taxable income above 708 310
1 500 001 and above	532 041 + 45% of taxable income above 1 500 000

Tax rebates	Amount in ZAR
Primary (age below 65)	R14 067
Secondary (age 65 and over)	R7 713
Tertiary (age 75 and over)	R2

Monthly medical credits in ZAR	
Main member	R310
First dependant	R310
Each additional dependant	R209

SECTION B

1.

1.1.1 Convert the weight of the box mentioned above to grams.

(2)

1.1.2 Determine the number of banana boxes that can be loaded in a 1-ton truck.

(3)

1.2 Lihle bakes two and a half dozen cakes. Determine the number of cakes baked by Lihle.

(2)

1.3 The machine digs a trench which is 5 feet deep. Determine the depth of a trench in metres.

NOTE: 1 foot = 30,48 cm.

(3)

1.4 One crate of cold drinks with 12 one litres cost R165,00. Determine the cost of one litre cold drink.

(2)

[12]

QUESTION 2

2.

A group of students from Lagos University travel by train from Capetown to Bellville via Monte Vista. Refer to the train time table below to answer the following questions.

Table 1: Train time table from Capetown to Bellville via Monte Vista

CAPE TOWN - BELLVILLE VIA MONTE VISTA										
MONDAYS TO FRIDAYS										
CAPE TOWN										
PLATFORM NO.	23	22	22	22	22	22	23	22	22	21
TRAIN NO.	2815	2817	2853	2821	2855	2341	2567	2829	2831	2851
CAPE TOWN	08:15	09:08	10:10	10:30	11:33	12:00	12:55	13:52	14:28	14:50
ESPLANADE	08:18	09:11	10:13	10:33	11:36	12:03	12:58	13:55	14:31	14:53
YSTERPLAAT	08:24	09:17	10:19	10:39	11:42	12:09	13:04	14:01	14:37	14:59
KENTEMADE	08:28	09:21	10:23	10:43	11:46	12:13	13:08	14:05	14:41	15:03
CENTURY CITY	08:31	09:24	10:26	10:46	11:49	12:16	13:11	14:08	14:44	15:06
AKASIA PARK	08:34	09:27	10:29	10:49	11:52	12:19	13:14	14:11	14:47	15:09
MONTE VISTA	08:37	09:30	10:32	10:52	11:55	12:22	13:17	14:14	14:50	15:12
DE GRENDEL	08:41	09:34	10:36	10:56	11:59	12:26	13:21	14:18	14:54	15:16
AVONDALE	08:43	09:36	10:38	10:58	12:01	12:28	13:23	14:20	14:56	15:18
OOSTERZEE	08:46	09:39	10:41	11:01	12:04	12:31	13:26	14:23	14:59	15:21
BELLVILLE	08:48	09:41	10:44	11:03	12:07	12:33	13:29	14:25	15:01	15:23

\$ - Stop Paarden Eiland

Source: www.metro-rail.co.za

2.1 If the students board train no. 2855, on which platform should they wait?

(2)

2.2 How long (in minutes) will it take them to travel from Capetown to Century City using train 2855. (2)

2.3 Mention two trains that travel exactly 34 minutes from Capetown to Bellville.

(4)

2.4 At which town will they be after 28 minutes if they board train no. 2341?

(2)

2.5 There are 3 584 students at the university. The ratio of males to females is 1:3. How many females are there? (3)

[13]

QUESTION 3

3. Senzo (52 years) is a manager in a new company. He earns a basic salary of R348 747,00 per annum. He has three dependants on his medical aid. Pension fund contribution is 7,5% of the basic salary. Use the information above and table 2 below to answer the following questions.

Table 2		Tax rates (year of assessment ending 28 February 2020)	
Taxable Income		Rates of tax	
0 - 195 850		18 % of taxable income	
195 851 - 305 850	35 253	+ 26% of taxable income above 195 850	
305 851 - 423 300	63 853	+ 31% of taxable income above 305 850	
423 301 - 555 600	100 263	+ 36% of taxable income above 423 300	
555 601 - 708 310	147 891	+ 39% of taxable income above 555 600	
708 311 - 1 500 000	207 448	+ 41% of taxable income above 708 310	
1 500 001 and above	532 041	+ 45% of taxable income above 1 500 000	
Primary Rebate		R14 220	
Secondary (Persons 65 and older)		R7 794	
Tertiary (Persons 75 and older)		R2 601	

The tax thresholds at which liability for normal tax commences	
Persons under 65	R79 000
Persons of 65 - 74 years	R122 300
Age 75 and older	R136 750

Medical aid tax credits

Main member	R310
First dependant	R310
Each additional dependant	R209

Source: www.sars.gov.za

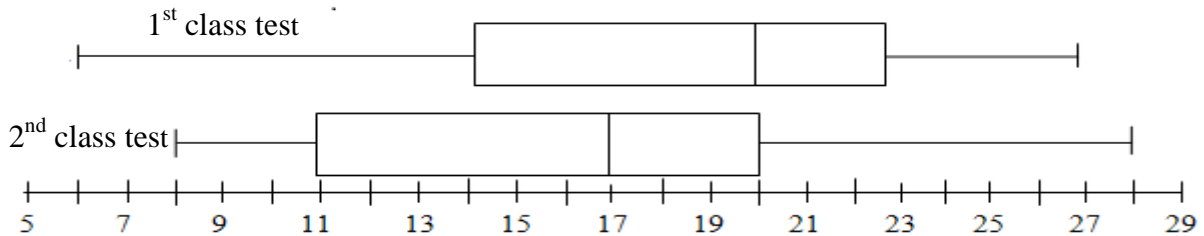
- 3.1 Calculate Senzo’s monthly basic salary. (2)
- 3.2 Show by calculations that Senzo’s monthly pension fund contribution is R2 179,67. (2)
- 3.3 The employee contributes $\frac{1}{3}$ towards monthly pension fund and the employer contributes $\frac{2}{3}$. Calculate the total monthly pension fund contribution. (2)
- 3.4 Calculate Senzo’s monthly tax. (8)

[14]

QUESTION 4

4. Ms Maharaj analyses the results of two class tests for her class. The two tests were out of 30 marks each. There are 48 learners in her class.

Box and whiskers showing results for two class tests.



Source: www.boxandwhiskerplots.com

- 4.1 Determine the number of learners who got 20 marks or less in the 1st class test. (2)
- 4.2 Give the highest mark scored by a learner in the 2nd class test. (2)
- 4.3 Determine the interquartile range for the 1st class test. (3)
- 4.4 In which class test did learners perform better? Explain by comparing the middle 50% in both tests. (4)

Total marks : 50

[11]