

Mathematics
PM
17/07/ 2023 09: 00 AM -11: 00 AM



Pupil's complete index number

Province/ City	District	Sector	School	Level	Pupil	Year
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Pupil's names

Surname:.....

Other names:.....

**NB: PUPIL'S INDEX NUMBER AND NAMES
MUST BE WRITTEN AS THEY APPEAR ON THE
REGISTRATION FORM**

PRIMARY LEAVING NATIONAL EXAMINATIONS, 2022-2023
MATHEMATICS

Duration: Two hours

Marks:

INSTRUCTIONS

- 1) Do not open this question paper until you are told to do so.
- 2) Attempt **ALL** questions in this paper.
- 3) Read each question carefully before answering it.
- 4) Answer the questions in the space provided in this question paper.
- 5) Show your working clearly. Marks will be given for showing steps.
- 6) All rough work must be done in the space under each question.
- 7) You must use a **blue** or **black** pen.
- 8) You are allowed to use a ruler, and a protractor.
- 9) You are **NOT** allowed to use a calculator.

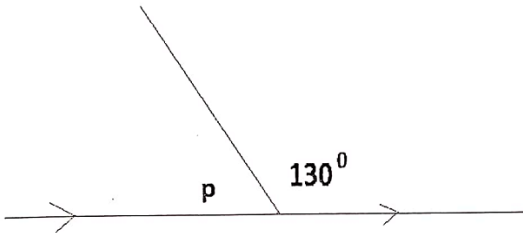
ATTEMPT ALL QUESTIONS IN THIS PAPER (100 marks)

Do rough work below each question	Show the working steps and final answer in this column
1) Write the following number in words: 59,648,205 (2 marks)	Fifty nine million six hundred forty eight thousand, two hundred and five
2) Write the place value of digits 5 and 4 in the number 6,859,174. (2 marks)	5 → ten thousands
3) Add vertically $4,985,678 + 2,378,522 =$ (2 marks)	$ \begin{array}{r} 4985678 \\ + 2378522 \\ \hline 7364190 \end{array} $
4) Use <, > or = to compare the following: a) $260,340$ <input type="checkbox"/> 260.340 (1 mark) b) $25,159,000$ <input type="checkbox"/> 25159×1000 (1 mark)	a) \neq b) $=$

<p>5) Round off 14.9781 to the nearest tenths. (2 marks)</p> <p>\Rightarrow</p>	<p>15.781</p>
<p>6) Find the missing two numbers in the sequence below. (a) 3; 8; 13; 18.....;</p> <p>(2 marks)</p>	<p>23; 28</p>
<p>7) Define an "obtuse angle".</p> <p>(2 marks)</p>	<p>Is an angle which is greater than 90° and less than 180°</p>
<p>8) Define the term "Probability" of an event.</p> <p>(2 marks)</p>	<p>Is the likelihood or chance of it occurring.</p>

<p>9) Convert 0.54 into fraction and simplify the answer completely. (2 marks)</p>	$\frac{54}{100} = \frac{27}{50}$
<p>10) Calculate 20% of 300. (2 marks)</p>	$\frac{20}{100} \times 300 = 60$
<p>11) Work out the following integers:</p> <p>a) $(-10) - (-8)$ (1 mark)</p> <p>b) $(+8) \times (-5) =$ (1 mark)</p>	<p>a) $-10 + 8 = -2$</p> <p>b) -40</p>
<p>12) Use quick multiplication to calculate the following:</p> <p>$567 \times 99 =$ (2 marks)</p>	$(567 \times 100) - 567$ $= 56133$

<p>13) Find $\frac{2}{3}$ of 21. (2 marks)</p>	$\frac{2}{3} \times 21 = 14$
<p>14) Write the multiples of 3 between 10 and 17. (2 marks)</p>	<p>15</p>
<p>15) Find the LCM of the numbers 36, 84 and 75. (2 marks)</p>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> $\begin{array}{r l} 36 & 2 \\ 18 & 2 \\ 9 & 3 \\ 3 & 3 \\ 1 & \end{array}$ $36 = 2^2 \times 3^2$ </div> <div style="text-align: center;"> $\begin{array}{r l} 84 & 2 \\ 42 & 2 \\ 21 & 3 \\ 7 & 7 \\ 1 & \end{array}$ $84 = 2^2 \times 3 \times 7$ </div> <div style="text-align: center;"> $\begin{array}{r l} 75 & 3 \\ 25 & 5 \\ 5 & 5 \\ 1 & \end{array}$ $75 = 3 \times 5^2$ </div> </div> $LCM = 2^2 \times 3^2 \times 5^2 \times 7$ $= 4 \times 9 \times 25 \times 7$ $= 1260$
<p>16) Workout the following: 4.5 kg + 13.6 dag = ___ kg (2 marks)</p>	<p>4.636 kg</p>

<p>17) Find the value of angle p in the figure below if p is the supplementary angle of 130°.</p> <p style="text-align: right;">(2 marks)</p> 	$p = 180^\circ - 130^\circ = 50^\circ$
<p>18) The interior angle of a regular polygon is 108°. Find its exterior angle.</p> <p style="text-align: right;">(2 marks)</p>	$180^\circ - 108^\circ = 72^\circ$
<p>19) Fill in the missing numbers</p> <p>(a) $\frac{2}{3} = \frac{8}{12}$ (1 mark)</p> <p>(b) $\frac{4}{5} = \frac{16}{20}$ (1 mark)</p>	
<p>20) Workout $\frac{0.1 \times 0.36}{0.09}$ (2 marks)</p>	$\frac{0.1 \times 100 \times 0.36 \times 100}{0.09 \times 100}$ $\frac{10 \times 36}{9} = 40$

<p>21) The diameter of a circular ring is 21 cm. What is its circumference? Take $\pi = \frac{22}{7}$ (2 marks)</p>	<p>$Circ = 21cm \times \frac{22}{7}$ $= 66cm$</p>
<p>22) Convert the following units: $14 m^3 = \dots\dots dal = \dots\dots kg$ (2 marks)</p>	<p>$14m^3 = 14000dl$ (dal) $14000l = 14000kg$ $1400l (kg)$</p>
<p>23) A rectangular box has 65 cm length, 40 cm width and 28 cm height. Calculate the volume of the box. (2 marks)</p>	<p>$V = 65cm \times 40cm \times 28cm$ $= 72800 cm^3$</p>
<p>24) Anine and Bollen shared 25 sweets in the ratio of 2:3 respectively. How many sweets did each get? (2 marks)</p>	<p>Anine = $\frac{2 \times 25}{5} = 10$ sweets Bollen = $\frac{3 \times 25}{5} = 15$ sweets</p>
<p>25) Arrange the following numbers in ascending order: (2 marks) $5; 0.56, 2; \frac{3}{10}, 0.09$</p>	<p>$0.09; \frac{3}{10}; 0.56;$ $2; 5$</p>

<p>26) After increasing a number by 15%, it became 34,500. What is the number? (3 marks)</p>	$\frac{115x}{100} = \frac{34500}{1}$ $115x = 34500 \times 100$ $115x = 3450000$ $x = \frac{3450000}{115}$ $x = 30000$
<p>27) Workout $\left(\frac{3}{5} + \frac{2}{5}\right) \div \frac{1}{2} =$ (3 marks)</p>	$\frac{5}{5} \times \frac{2}{1} = \frac{10}{5} = 2$
<p>28) Solve the following equation: $4 - x = 5x - 8$ (3 marks)</p>	$-x - 5x = -8 - 4$ $-6x = -12$ $\frac{-6x}{6} = \frac{-12}{6}$ $-x = -2$ $x = 2$
<p>29) A private school has 617 pupils. If one pupil pays 152 800Frw in school fees per term, how much money do they pay altogether in one term? (3 marks)</p>	617×152800 $= 942776$

<p>30) Electric poles are fixed along one side of a 16 km section of a road. This was to light the road. The poles are placed 10 m apart from each other. How many poles are fixed? (3 marks)</p>	<p>16km = 16000m Number of poles = $\frac{16000 \times 1000}{10} = 1600 \text{ poles}$</p>
<p>31) A father earns a salary of 250 000 Frw in a month. He spends his money as follows: Rent: 30 000 Frw School fees: 55 000 Frw Food: 35 000 Frw Transport: 15 000 Frw. He saves the remaining money. a) How much does he spend in total each month? (3 marks) b) How much does he save each month? (2 marks) c) Why do you think it is important for the father to save? (2 marks)</p>	<p>a) $30000 + 55000 + 35000 + 15000 = 135000 \text{ Frw}$ b) $250000 - 135000 = 115000 \text{ Frw}$ c) To use in the future</p>
<p>32) Bus n°1 travelling at 60 km/h left Kigali at 8:30 a.m. Bus n°2 travelling at 80 km/h followed it after 1 hour. a) When did Bus n°2 overtake Bus n°1? (5 marks) b) What distance had both Buses covered? (2 marks)</p>	<p>$S_1 = 60 \text{ km/hr}$ $S_2 = 80 \text{ km/hr}$ Adv of time = 1h Adv of dist = $60 \text{ km} \times 1 = 60 \text{ km}$ $T = \frac{60 \text{ km}}{20 \text{ km/h}} = 3 \text{ hrs}$ a) $8:30 + 1 \text{ h} + 3 \text{ h} = 12:30 \text{ am}$ b) $D_1 = 60 \text{ km} \times 3 = 180 \text{ km}$ $D_2 = 80 \text{ km} \times 3 = 240 \text{ km}$ Tot = $180 \text{ km} + 240 \text{ km} = 420 \text{ km}$</p>

<p>33) A business woman borrowed 480,000Frw from UMURENGE SACCO for 2 years. The interest rate offered was 12% per year.</p> <p>a) How much interest did she pay back? (4 marks)</p> <p>b) What amount did she pay to UMURENGE SACCO? (3 marks)</p>	<p>a) $I = \frac{P \times R \times T}{100}$</p> $I = \frac{480000 \times 12 \times 2}{100}$ $= 115,200 \text{Frw}$ <p>b) Amount =</p> $480000 + 115,200$ $= 595,200 \text{frw}$
<p>34) A mixture of yellow maize flour and white maize flour costs 400 Frw per kg. 20 kg of yellow maize flour costs 450 Frw per kg and the white maize flour costs 350Frw per kg. Find the kilograms for the white maize flour. (7 marks)</p> <div style="text-align: center;"> $\begin{array}{r} 20 \text{kg} \rightarrow 450 \text{Frw/kg} \\ \text{?} \rightarrow 350 \text{Frw/kg} \\ \hline 400 \text{Frw/kg} \end{array}$ </div>	$50 \text{kg} \rightarrow 50 \text{kg}$ $1 \text{kg} \rightarrow \frac{50 \text{kg}}{50}$ $20 \text{kg} \rightarrow \frac{50 \text{kg} \times 20}{50} = 20 \text{kg}$