MARKING GUIDE OF P6 MATHEMATICS NATIONAL EXAMINATION 2022-2023

1. Fifty-nine million, six hundred forty-eight thousand, two hundreds and five
2. The place value of digit 5 in the number 6,859,174 is ten thousands
   The place value of digit 4 in the number 6,859,174 is ones
3.

$$\begin{array}{r} {\scriptstyle 1\ 1\ 1\ 1\ 1\ 1\ 1} \\ 4{,}985{,}678 \\ +\ 2{,}378{,}522 \\ \hline 7{,}364{,}200 \end{array}$$

4. Use $<, >$ *or* $=$ to compare the following:

   a) 260,340 [>] 260.340

   b) 25,159,000 [=] 26159×1000

5. 15,0
6. 3; 3 + 5; 8 + 5; 13 + 5; 18 + 5; 23 + 5
   3; 8; 13; 18; 23; 28
7. An obtuse angle is an angle that is greater than 90 degrees and less than 180 degrees.
8. The probability of an event is the likelihood of an event to happen.
9. $0.54 = \frac{54}{100} = \frac{27}{50}$
10. $20\%\ of\ 300 = 300 \times \frac{20}{100} = 60$
11. a) $(-10) - (-8) = -10 + 8 = -2$

    b) $(+8) \times (-5) = -40$
12. $567 \times 99 = 567 \times (100 - 1) = 56{,}700 - 567 = 56{,}133$
13. $\frac{2}{3}\ of\ 21 = 21 \times \frac{2}{3} = 14$
14. The multiples of 3 between 10 and 17 are 12 ($12 = 3 \times 4$) and 15 ($15 = 3 \times 5$).

15. LCM of the numbers 36, 84 and 75

$36 = 2^2 \times 3^2$

$84 = 2^2 \times 3 \times 7$

$75 = 3 \times 5^2$

The LCM of the numbers 36, 84 and 75 is equal to $2^2 \times 3^2 \times 5^2 \times 7 = 6{,}300$

Another way:

	36	**75**	**84**
2	18	75	42
2	9	75	21
3	3	25	7
3	1	25	7
5	1	5	7
5	1	1	7
7	1	1	1

The LCM of the numbers 36, 84 and 75 is equal to $2 \times 2 \times 3 \times 3 \times 5 \times 5 \times 7 = 2^2 \times 3^2 \times 5^2 \times 7 = 6{,}300$

16. 4.5 kg + 13.6 dag = 4.5 kg + 0.136 kg = 4.635 kg

17. The value of angle p == $180° - 130° = 50°$

18. The exterior angle = $180°$ - $108° = 72°$

19. (a) $\frac{2}{3} = \frac{2\times4}{3\times4} = \frac{8}{12}$

Another way: $\frac{2}{3} = \frac{8}{x} \Rightarrow x = \frac{8\times3}{2} = 12$. So, $\frac{2}{3} = \frac{8}{12}$

(b) $\frac{4}{5} = \frac{4\times4}{5\times4} = \frac{16}{20}$

20. $\frac{0.1\times0.36}{0.09} = \frac{0.1\times0.36\times100}{0.09\times100} = \frac{0.1\times36}{9} = 0.1 \times 4 = 0.4$

Another way:

$\frac{0.1\times0.36}{0.09} = \frac{\frac{1}{10}\times\frac{36}{100}}{\frac{9}{100}} = \frac{1}{10} \times \frac{36}{100} \times \frac{100}{9} = \frac{36}{90} = \frac{4}{10} = 0.4$

21. $Circumference = Diameter \times \pi = 21cm \times \frac{22}{7} = 3cm \times 22 = 66cm$

22. $14\,m^3 = 1{,}400\,dal = 14{,}000\,kg$

23. $Volume = L \times W \times H = 65cm \times 40cm \times 28cm = 72{,}800\,cm^3$

24. Total ratio = 2 + 3 = 5

Number of sweets that Anine get $= 25 \times \frac{2}{5} = 10$

Number of sweets that Bollen get $= 25 \times \frac{3}{5} = 15$

25. $\frac{3}{10} = 0.3$

The ascending order is $0.09; \frac{3}{10}; 0.56; 2; 5$

26. After increasing a number by 15%, it became 34,500. What is the number?
Let be x that number

So $x + \frac{15}{100}x = 34{,}500$

$x + 0.15x = 34{,}500$

Multiply each side by 100

$100x + 15x = 3{,}450{,}000$

$115x = 3{,}450{,}000$

$\frac{115x}{115} = \frac{3{,}450{,}000}{115}$

$x = 30{,}000$

That number is 30,000

27. $\left(\frac{3}{5} + \frac{2}{5}\right) \div \frac{1}{2} = \left(\frac{5}{5}\right) \div \frac{1}{2} = 1 \div \frac{1}{2} = 2$

28. $\boldsymbol{4 - x = 5x - 8}$

$\boldsymbol{4 + 8 = 5x + x}$

$\boldsymbol{6x = 12}$

$\boldsymbol{\frac{6x}{6} = \frac{12}{6}}$

$\boldsymbol{x = 2}$

29. The money they pay altogether $= 617 \times 154{,}800Frw = 94{,}277{,}600Frw$

30. Length of the road = 16km = 16,000 m

The number of poles fixed $= \frac{Length\ of\ the\ road}{ditance\ between\ two\ poles} + 1 = \frac{16{,}000}{10} + 1 = 1601$

31. (a) Total money that he spends in one month

$= 30{,}000 + 55{,}000 + 35{,}000 + 15{,}000 = 135{,}000Frw$

(b) The amount saved in one month $= 250{,}000 - 135{,}000 = 115{,}000Frw$

(c) It is important to save in order to increase the economy of the family; paying school fees; being able to start a business; and to solve emergency problems that may arise at any time.

32. (a) Bus n°1 moves at 60km/h and left at 8:30

Bus n°2 moves at 80km/h and left at 9:30

Time in advance: 1h

Distance in advance = 60 km

Time to catch up $= \frac{D}{S_2 - S_1} = \frac{60\ km}{80\frac{km}{h} - \frac{60km}{h}} = \frac{60\ km}{20km/h} = 3\ hours$

Bus n°2 will overtake bus n°1 at 9h30 + 3 hours = 12h30

(b) Distance covered by each bus $= 80\ km \times 3 = 240\ km$

Or $60\ km \times 3 + 60\ km = 240\ km$

Another way:

(a) After one hour, the Bus n°1 will have moved a distance of 60km.

The Bus n°2, makes 20 km more than Bus n°1 each hour.

After 3 hours, the Bus n°2 will overtake the Bus n°1.

(b) The distance covered by both Buses $= V \times t = \frac{60km}{h} \times 4hr = 240km$

Or $distance = V \times t = \frac{80km}{h} \times 3hr = 240km$

33. (a) Interest after two years =

$I = P \times \frac{R}{100} \times T = \frac{480{,}000 \times 12 \times 2}{100} = 115{,}200\ Frw$

The interest she paid back = 115,200Frw

The amount of money that she paid to UMURENGE SACCO

= 480,000 Frw +115,200Frw = 595,200 Frw

34.

	Yellow flour	+	White flour	=	Mixture
Qty	20	+	x	=	$(20 + x)$
Px/kg	450		350		400

Multiply each quantity by its price to form an equation

$(20 \times 450) + (350 \times x) = 400(20 + x)$

$9{,}000 + 350x = 8{,}000 + 400x$

$400x - 350x = 9{,}000 - 8{,}000$

$50x = 1{,}000$

$\frac{50x}{50} = \frac{1{,}000}{50}$

$x = 20Kg$

The quantity of white flour is 20kg

35. (a) 7 days

(b) Number of trays collected in the whole week

$$= 35 + 25 + 35 + 45 + 15 + 50 + 20 = 225$$

(c) On Friday

(d) On Saturday

(e) On Monday and Wednesday

(f) The amount of money that the company gets from eggs in a week

$= 225 \times 4{,}500Frw = 1{,}012{,}500Frw$