THE REAL PRIVATE TEACHER GUIDES MTC SPECIAL BOT -2 2023

1. 5 . 4 + 3 . 0 = 8 . 0

2. 12000 + 12 = 12012

3. 4 + K = 12
4 – 4 + K = 12 – 4
K = 8

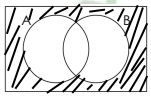
4. 201_{three} - 12_{three} = 122_{three}

5. 1, 4, 7, 10, 13
1 + 3 = 4
4 + 3 = 7
7 + 3 = 10
Product of 10 & 13
10 x 13 = 130

6. Sample space (ss)
SS = 15 + 5
= 20
Prob. = (E)/SS
= 15/20

7. 144 = 100 + 40 + 4
= C + XL + IV
= CXLIV

8. $-4^0C + 10^oC$
$= 6^oC$

9. 

10. $(6x10^3) + (3x10^1) + (4x10^{-1})$
6x1000 + 3x10 + 4x0.1
6000 + 30 + 0,4
6030.4

11. 2parts = 24 sweets
1part = (21÷2)sweets
1part = 12 sweets
3parts = 3 x 12 sweets
3parts = 36 sweets.

12. 25 ÷ 5 = 5

13. 4/9 ÷ 2/3
= 4/9 x 3/2
= 2/3

14. Let **k** be the other number
k x 15 = 60 x 6
15k/15 = 360/15
k = 24
15 is the other number.

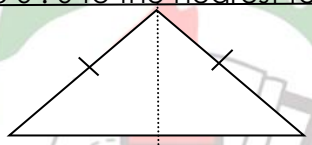
15. (28 x 1/4) – (6 x 1/2)
= 7 – 3
= 4

16. 25000/75000 x 100%
1/5 x 100%
= 100%/5
= 20%

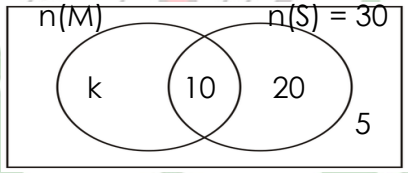
17. w + 120° = 180°
w + 120° – 120° = 180° - 120°
w = 60°

18. Sample space.
SS = {1, 2, 3, 4, 5, 6}
Composite numbers = {4, 6}
Prob = 2/6

19. 4 9 . 9 8
+ 0 . 1
5 0 . 0 to the nearest tenths

20. 
One line of folding symmetry

21.a) (∑) = 60



b). Value of k
k + 10 + 20 + 5 = 60
k + 35 = 60
k + 35 – 35 = 60 – 35
k = 25

c). Only one subject
k + 20
25 + 20
= 45 pupils
Prob. = (E)/(T)
= 45/60

22.a). 0 . 3 8 4
- 0 . 3 3 0
0 . 0 5 4

= 54/1000 ÷ (3/10 x 9/10)
= 54/1000 x 100/3 x 100/9
= 54/270
= 2/10 = 0 . 2

b). 3/4 - 1/3 ÷ 5/6
3/4 - 1/3 x 6/5
3/4 - 2/5
15 – 8/20
7/20

23.a). **Meat**
Shs10,000 x 5
Shs50,000

Salt
500/1000 x 1,200
50 x 12
= 600.

Soap
Shs6,000

Tomatoes
Shs50,000
Shs6,000
Shs5,000
+ Shs600
Shs61,600

b). **Change**
Shs65,000
- Shs61,600
Shs3,400

24.a). **Distance**
D = speed x Time
D = 60km/hr x 1 1/2hr
D = 60km x 3hr/2
D = 30km x 3
D = 90km

b). **Average speed**
= 90km + 90km / 1 1/2hr + 2 1/2
= 180km/4hr
= 45km/hr

Return time
90km
36km/hr
2 1/2hrs

25a). **Value of** k
k x 2 x 2 x 3 = 60
12k/12 = 60/12
k = 5

b). Value of w
3 x 3 x 3 x 2 x 2 = w
27 = w
108 = w

w = 108

(c) G.C.F = 2 x 2 x 3
= 12

(d). L.C.M = 5 x 2 x 2 x 3 x 3 x 3
= 20 x 27
= 540

26.a) Range = H – L
= 95 – 30
= 65

b). Mean mark above **50**%

$$\frac{(60 \times 5) + (80 \times 4) + 100}{10}$$

$$= \frac{300 + 320 + 100}{10}$$

$$= \frac{720}{10}$$

= 72

27. Alex : Amon : Agatha
3 : 2 : 5
? : **?** : Shs15,000
5parts = Shs15,000
1part = Shs15,000 ÷ 5
1part = Shs5,000
3parts = Shs5,000 x 3
3parts = Shs15,000
Alex got Shs15,000

Total parts shared
= 3 + 2 + 5
= 10 parts
1part = Shs5,000
10parts = Shs5000 x 10
10parts = Shs50,000
They shared Shs50,000

28a) $102_n = 11_{ten}$
$(1xn^2) + (0xn^1) + (2xn^o) = 11$
$n^2 + 0 + 2 = 11$
$n^2 + 2 = 11$
$n^2 + 2 - 2 = 11 - 2$
$\sqrt{n^2} = \sqrt{9}$
$n = 3$

b). $5^2 \times 5 = 125$
$5^2 \times 5^1 = 5^3$
$5^{2x} + 1 = 5^3$
$2x + 1 - 1 = 3$
$2x + 1 - 1 = 3 - 1$

$$\frac{2x}{2} = \frac{2}{2}$$

X = 1

29a). W = $^-7$, K = $^+4$, N = $^-3$
b). $^+4 + {}^-7 = {}^-3$

30. Let the son's age be **w**
Then the man's age will be **3w**

son's age	Man's age	difference
w	3w	18

3w – w = 18

$$\frac{2w}{2} = \frac{18}{2}$$

W = 9

The son is 9 yrs old

31a). **Value of h**
5cm x 3cm x h = $60cm^3$

$$\frac{15cm^2 \times h}{15cm^2} = \frac{60cm^3}{15cm^2}$$

h = 4cm

(b) **Total surface area**
= 2(LxW) + 2(L+H) + 2(WxH)
= $2(5x3)cm^2 + 2(5x4)cm^2 + 2(3x4)cm^2$
= $30cm^2 + 40cm^2 + 24cm^2$
= $94cm^2$

32a). At 7 : 30am
b). 8 : 40am
- 8 : 15am
25mins

The stopover was for 25mins
(c) 11 : 00am
- 6 : 00am
5 00 hrs
Time taken = 5hrs
Av. Speed = $\frac{200km}{5hrs}$
= 40km/hr