1). 6 tens + 2 ones
    $6 \times 10 + 2 \times 1$
    $60 + 2 = 62$

2). $\frac{25}{100} = \frac{25^1}{100_4} = \frac{1}{4} = 1:4$

3). 4 3, 0 0 0
    +   4 3
    4 3, 0 4 3

4). 1, 6, 4, 9, 7, 12, 10
    $1 + 5 = 6$ $6 - 2 = 4$
    $4 + 5 = 9$ $9 - 2 = 7$
    $7 + 5 = 12$ $12 - 2 = 10$

5). $k + k + 50^0 = 180^0$
    $2k + 50^0 = 180^0$
    $2k + 50^0 - 50^0 = 180^0 - 50^0$
    $2k = 130^0$
    $\frac{2k}{2} = \frac{130^{65}}{2}$
    $k = 65^0$

6). 1 0 1 1$_{two}$
    - 1 0 1$_{two}$
    1 0 0 0$_{two}$

7). $3y - 5 \leq 13$
    $3y - 5 + 5 \leq 13 + 5$
    $3y \leq 18$
    $\frac{3y}{3} \leq \frac{18}{3}$
    $y \leq 6$

8). 9 : 30 am
    - 1 15hrs
    8 : 15 am

9). $\frac{3}{4} \div \frac{1}{2}$
    $\frac{3}{4^2} \times \frac{2^1}{1} = \frac{3}{2} = 1\frac{1}{2}$

10. 1 dozen costs Shs6000
    12 pens cost Shs6000
    $\frac{12 \text{ pens cost}}{12} = \frac{Shs6000}{12}$
    1 pen costs   Shs500
    8 pens cost Shs500 x 8
    8 pens cost Shs40,000

11. CXLIV = C   XL   IV
    $= 100 + 40 + 4$
    CXLIV = 144

12. Av. Speed = $\frac{5000m}{25min}$
    = 500m/min.

13. $(4.5 \times 145) - (45 \times 4.5)$
    $4.5(145 - 45)$
    4.5×100
    450

14. Buying price = SP + L
    Shs45,000
    + Shs15,000
    Shs60,000
    $\frac{Shs15,000}{Shs60,000_4} \times 100\%$
    $\frac{100\%}{4} = 25\%$

15. $(3x - 1) - (-2 - x)$
    $3x - 1 + 2 + x$
    $3x + x + 2 - 1$
    $4x + 1$

16. $2n - 1$
    $2 \times 9 - 1$
    $18 - 1 = 17$

17. $2\pi r = C$
    $\frac{2 \times 22 \times r}{7} = 88cm$
    $\frac{44r}{7} = 88cm$
    $7 \times \frac{44r}{7} = 88cm \times 7$
    $\frac{44r}{44} = \frac{88^2 cm \times 7}{44}$
    $r = 2cm \times 7$
    $r = 14cm$

18. $2^n - 1$ = proper subsets
    $2^n - 1 = 31$
    $2^n - 1 + 1 = 31 + 1$
    $2^n = 32$
    $2^n = 2^5$
    $n = 5$
    $n(k) = 5$

19. Sample space
    $5 + 6 + 8 = 19$
    Prob. $= \frac{5}{19}$

20. Test for divisibility by 9
    $6 + 9 + 5 + 7 = 27$
    27 is multiple 9
    Therefore, 6957 is
    divisible by 9 since the sum
    of digits is divisible by 9.

21a). 5.4×0.8
    0.09×1.2
    $\frac{54}{10} \times \frac{8}{10} \div \left(\frac{9}{100} \times \frac{12}{10} \right)$
    $\frac{54^9}{10} \times \frac{8}{10} \times \frac{100}{9} \times \frac{10}{12_2}$
    $\frac{9}{1} \times \frac{8^4 \times 10 \times 1}{1 \times 1 \times 9 \times 2_1} = 40$

b). $\frac{1}{2} + \frac{2}{3} \div \frac{4}{9}$
    $\frac{1}{2} + \frac{2^1}{3_1} \times \frac{9^3}{2_1}$

$\frac{1}{2} + \frac{3}{2}$
$\frac{4}{2} = 2$

22a). Total ratio
    $2 + 3 + 5 = 10$
    3 parts = Shs24,000
    $\frac{3 \text{parts}}{3} = \frac{Shs24,000}{3}$
    1 part = Shs8,000
    10 parts = Shs8,000 x 10
    10 parts = Shs80,000
    They shared Shs80,000

b). Jacob than Job.
    $5 - 2 = 3$ more parts.
    1 part = Shs8,000
    3 parts = Shs8,000 x 3
    3 parts = Shs24,000
    Jacob got Shs24,000 more than Job.

23a). $L \times W \times H = V$
    $8cm \times 6cm \times h = 480cm^3$
    $\frac{48cm^2 \times h}{48cm^2} = \frac{480^{10}cm \times cm \times cm}{48cm \times cm}$
    $h = 10cm$

b). Total surface area.
    $= 2(L \times W) + 2(L \times H) + 2(W \times H)$
    $= 2(8_{cm} \times 6_{cm}) + 2(8_{cm} \times 10_{cm}) + 2(6_{cm} \times 10_{cm})$
    $= 2 \times 48_{cm}^2 + 2 \times 80_{cm}^2 + 2 \times 60_{cm}^2$
    $= 96_{cm}^2 + 160_{cm}^2 + 120_{cm}^2$
    $= 376cm^2$

24a).

Meat	**Rice**
Shs15,000x4	Shs4,000x1½
Shs60,000	Shs10,000
Curry powder	**Tomatoes**
Shs4,000	$\frac{20^4 \times Shs2000}{5}$
	4 x Shs2000
	= Shs8,000

Total	**Amount paid**
Shs60,000	100% - 10% = 90%
Shs10,000	$\frac{90 \times Shs82,000}{100}$
Shs8,000	
+Shs4,000	90 x 820
Shs82,000	= Shs73,800

b). **Amount he had at the beginning**.
    Shs73,800
    + Shs1,200
    Shs75,000

25. **Volume of the cylinder**
    = base area x height
    = 2,200cm^2 x 100cm
    = 220,000cm^3
    Capacity

$1000cm^3$ = 1litre
$220,000 = \frac{220,000}{1000}$ litres
$220,000cm^3$ = 220 litres
Its capacity is 220 litres when full.

26a). The motorcyclist left town **A** at 11:00pm.
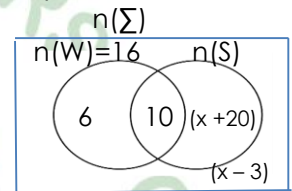
b).2 : 30pm – 9:00am
    12 : 00   3 : 00
    - 9 : 00   + 2 : 30
    3 : 00   5 : 30
The motorist took 5 hours and 30 minutes.

c). At town **A** and town **B**
    = 15min + 15min = 30mins

27a).

$n(\Sigma)$
n(W)=16   n(S)
6   10   (x +20)
(x – 3)

b). **Value of x**
    $x + 20 + 10 = 38$
    $x + 30 = 38$
    $x + 30 - 30 = 38 - 30$
    $x = 8$

c).$n(\Sigma) = x - 3 + x + 20 + 10 + 6$
    $= 8 - 3 + 8 + 20 + 10 + 6$
    $= 5 + 8 + 20 + 16$
    $= 49$

Prob. $= \frac{6}{49}$

28a). $6S^2 = $ T.S.A
    $6S^2 = 54cm^2$
    $\frac{6S^2}{6} = \frac{54^9 cm^2}{6}$
    $\sqrt{S^2} = \sqrt{9cm^2}$
    $S = 3cm$
The length of each side is 3cm.

b). $V = L \times W \times H$
    $V = 3cm \times 3cm \times 3cm$
    $V = 27cm^3$

29a). Sum = 5 x 8
    = 40
    $9 + 7 + 2x + 6 + 4 + 10 = 40$
    $2x + 9 + 7 + 4 + 6 + 10 = 40$
    $2x + 36 = 40$
    $2x + 36 - 36 = 40 - 36$
    $\frac{2x}{2} = \frac{4}{2}$
    $x = 2$

b). 9, 7, (2x2+5), 4, 10

9, 7,   9,   4, 10

4, 7,   9,   9, 10

Median = 9

30(a) **Value P**

$P + 45^0 + 70^0 = 180^0$

$P + 115^0 = 180^0$

$P + 115^0 - 115^0 = 180^0 - 115^0$

$P = 55^0$

b). **Value of X**

$x + 30^0 + 70^0 = 180^0$

$x + 100^0 = 180^0$

$x + 100^0 - 100^0 = 180^0 - 100^0$

$x = 80^0$

31). **Number of $^1/_3$ litres in a litre.**

$1 \div ^1/_3$

$\dfrac{1 \times 3}{1}$

3 thirds per litre

$3 \times 5km = 15km$

15km need 1 litre

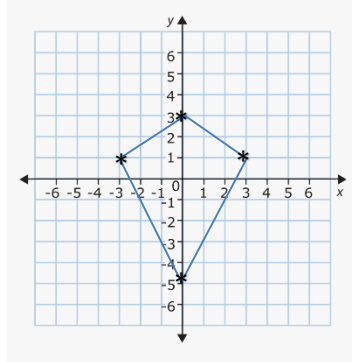300km need $(300 \div 15)$litres

300km need 20 litres

1 litre costs Shs6500

20litres cost Shs6500 x 20

20lites cost Shs130,000

32.a)

A(0,3), B(3,1), C(0,-5), D(-3,1)

b). The figure formed is a kite.