book p. 106 till p120

1) a. 1:3
b. 2:3
c. 1:2

2) a. $\frac{1}{2}$
b. $\frac{3}{2}$
c. $\frac{AB}{2}$
d. $\frac{2}{3}$

3) a : b : c
5 : 6 :
8 : 9
40 : 48 : 54 ÷2
20 : 24 : 27

4) a : b : C
2 : 3
6 : 7
12 : 18 : 21 ÷3
4 : 6 : 7 → a : C = 4 : 7

5) 32 % + 27 % + 41 % = 100 %

6) 76 % + 41 % − 17 % = 100 %

7) 100 % (43 % + 35 %) = 78 %

8) 1 (37 % + 41 %) = 78 %

9) 5 cm^3 = 5000 mm^3

10) 15000 mm^3 ÷1000 = 1.5 cm^3

11) 0.001 cm^3 ×1000 = 1 mm^3

12) 300000 cm^3 ÷1000000 = 0.3 m^3

13) 7000000 cm^3 ÷1000000 = 0.000007 m^3

14) 85000000 mm^3 ÷1000 = 85000000 cm^3

15) 3 Litre ×1000 = 3000 cm^3

16) 42 cm^3 ÷1000 = 0.042 L

p. 107

17) 370 cm^3 ÷1000 = 0.37 Litre

18) 840 mL ÷1000 = 0.84 L

19) 1.3 m^3 ×1000000 = 1300000 mL

20) 2.5 m^3 ×1000 = 2500 l

21) rectangle

22) rhombus

23) square, parallelogram, rhombus, rectang

24) P = 16
P of square = 5 × 4
5 = P ÷ 4
= 16 ÷ 4 = 4
V cube = 4 × 4 × 4 = 64 cm^3.

25) $C = \frac{1}{8}dm^3 \times 1000 = 125\,cm^3 \rightarrow 5 = 5\,cm$

26) External volume = $1000\,cm^3$, capacity = $729\,cm^3$
Then the V. of its material = Ext. − capacity
$= 1000 - 729 = 271\,cm^3$

27) a) $\frac{2}{3} = \frac{2}{3}$ b) $\frac{6}{7} > \frac{5}{7}$ c) $\frac{3}{5} < \frac{4}{5}$

28)

i) $\times \frac{2}{3}$

3	9	12	15	18	24	27
2	6	8	10	12	16	18

$\div \frac{2}{3}$

ii) $\times \frac{5}{2}$

6	2	8	10	14	12	18
15	5	20	25	35	30	45

$\div \frac{5}{2}$

29)

Time min.	15	30	45	60
No. of Litre	45	90	135	180

30) Range

31) Range = 36 greatest = 78
Range = greatest − smallest
smallest = 78 − 36
= 42

32) a) 25
b) $10 + 6 + 4 = 20 \rightarrow \frac{20}{40} \times 100 = 50\%$

Second: Choose the correct answer.

1) 7 : 13 x : 52 $\rightarrow \frac{7}{13} = \frac{x}{52} \rightarrow x = 28$

angle$_1$: angle$_2$: angle$_3$: sum

2) 2 : 3 : 4 : 9 : : : 180 $A_1 = \frac{2 \times 180}{9} = 40°$ $A_2 = \frac{3 \times 180}{9} = 60°$ $A_3 = \frac{4 \times 180}{9} = 80°$

c) 40 ; 80 , 60

3) $\frac{12}{100} \times 89 = 10.68 \simeq 11\,kg$

4) $\frac{m}{7}$ = dm

5) L : hr
2.5 : 1
× 5.5
$L = \frac{2.5 \times 5.5}{1} = 13.75\ L$ → remaining = 25 L − 13.75
b) = 11.25 L

6) $A = 2000\ cm^2$ 

$v_{cube} = v_{cuboid} = 40 \times 40 \times 40 = 64000\ cm^3$

$h = \frac{v}{A} = \frac{64000}{2000} = 32\ cm$ b)

p. 109

7) $\frac{5}{7} \times 84 = 60$, $\frac{2}{3} \times 84 = 56$
a)
$60 - 56 = 4$

8) L : km
12 : 96
: 144
c)
$L = \frac{12 \times 144}{96} = 18$

9) m^3

10) $v = 0.00546\ m^3 \times 1000000 = 5460 \simeq 500$

11) $100\ mm^3$ equals → d) $\frac{1}{10000}\ dm^3$

12)

	Tree 1	:	Tree 2
height	3	:	2
shade	180	:	

$shade_2 = \frac{2 \times 180}{3}$
c) 120 cm

1 : 5

: $\frac{1}{2}$ a)

map = $(1 \times \frac{1}{2}) \div 5 = 0.1$

14) The insect length in the pic. = 4 cm

Real length = 2 mm ÷ 10 = 0.2 cm c)

Drawing scale: $\frac{\text{drawing length}}{\text{Real length}} = \frac{4}{0.2} =$ 20 : 1

15) map : Real

1 : 100 000 L = 1500000 cm ÷ 100 00

15 X = 15 km

16) map : Real

1 : 2000 000

7 X L = 14000000 ÷ 100 00

= 140 km.

or

D	1	7
R	2000 000	

17) Before : ocazion : After

100 : :

240 : 60 : 180

diff. = 240 − 180 = 60 L.E (not paid)

ocazion percentage = $\frac{100 \times 60}{240}$ = 25% c)

8) Buying price : profit : selling price
100 % : 15 % : 115 %
c)

19) $\frac{75}{100} \times 60 = 45\%$

20) $C = 2\pi r$ if r increased by 5%
Then C will increase by 5% too.

21) c) 25%

22) Before : discount : After
100 : 10 : 90
2600 : 260 : 2340

23) distance : min.
15 % : 3 min
100 % : 20 min d)

24) gm : calories
100 : 300
30 : 90
Calories: $\frac{300 \times 3}{100} = 90$ C
a)

25) $\frac{15}{100} \times 1172 = 175.8$

They increased to be $1172 + 175.8 = 1347.8 \simeq 1400$ d)

26) Turns : times
Basim : 4
Sameh 12 : 3
d)

Turns of Basim: 16 Turn.

27) Ahmed + Amr = 40 L.E

30 + Amr = 40 → Amr = 40 − 30 = 10 L.E

Amr + Sherif = 30 L.E

10 + Sherif = 30 L.E → Sherif = 30 − 10 = 20 b)

Ahmed has got 30 L.E

28) $A = 4\,cm^2$ → Then $s = 2\,cm$ → $v = 2 \times 2 \times 2 = 8\,cm$ b)

29) edge length = 9 cm ÷ 100 = 0.09 m

The sum of all edges = 0.09 × 12 = 1.08 m c)

30) capacity = 1 L × 1000 = $1000\,cm^3$

edge length = 10 cm c)

31) The range = 9 − 3 = 6 c)

32) b.

33) a. 175 → 100 + 75 = 175

Answer the Following questions:-

1) Arrange in ascending order.

Convert all to m.L

30 L = 30000 mL, $31000\,cm^3$ = 31000 mL

→ 29000 mL, 30 L, $31000\,cm^3$

(2) Arrange in descending order.

Convert all to mL

$500\,000\,cm^3$ = 500 000 mL, 50 000 L = 50000000 mL

$5\,m^3$ = 5000 000 mL.

→ 50 000 L, $5\,m^3$, $500\,000\,cm^3$

3 : 2

4) 80 : 105
16 : 21

5) 3 : 1 : 2
$\frac{3}{24} = \frac{1}{8}$

6) $1\frac{1}{2}$ ton = 1500 kgm.

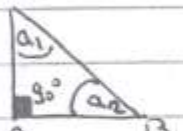
load 1st : load 2nd
600 : 1500 ÷ 3
2 : 5

7) pens : L.E
15 : 9
5 : x → $\frac{9 \times 5}{15} = 3$ L.E

8) Boys : Girls : Total
6 : 7 : 13
: 260
Boys = $\frac{6 \times 260}{13} = 120$ Boy.
Girls = $\frac{7 \times 260}{13} = 140$ Girl.

9) Seif : Jehan
9 : 11
189 : x → Jehan = $\frac{11 \times 189}{9} = 231$ po

10) Osama : Ibrahim : diff.
9 : 8 : 1
108 : 96 : 12
Osama = $\frac{9 \times 12}{1} = 108$ cm Ibrahim = $\frac{8 \times 12}{1} = 96$
diff = 108 − 96 = 12 cm

11) 

$m(\angle A) + m(\angle B) + m(\angle C) = 180°$
$m(\angle C) + m(\angle B) = 180° - 90° = 90°$

Then →
acute 1 : acute 2 : sum
7 : 11 : 18
35° : 55° : 90°
m. acute 1 = $\frac{7 \times 90}{18} = 35°$, acute 2 = $\frac{11 \times 90}{18} = 55°$
sum = 35° + 55° = 90°

12)
a. Feddan : hour
27 : $4\frac{1}{2}$
42 : → $\frac{42 \times 4.5}{27} = 7$ ~~Feddan~~ hr.

b. Feddan : hour
27 : 4.5
: 3 → $\frac{27 \times 3}{4.5} = 18$ Feddan.

13) a. Sugar : jam
2.4 : 3
7.2 → $\frac{3 \times 7.2}{2.4} = 9$ kg of jam

b. Sugar : jam
2.4 : 3
: 7.5 → $\frac{2.4 \times 7.5}{3} = 6$ kg of su

4)
1hr

15) Length before enlargement = 7 cm
width " " = 4 cm

map : Real
3 : 2
: 7 → L. after enlargment = $\frac{7 \times 3}{2}$ = 10.5

map : Real
3 : 2
: 4 → w. after enlargment = $\frac{3 \times 4}{2}$ = 6

6) map : Real
1 : 500 000
5 ×

map	1	5 cm	
real	500 000	2500 000	cm

or

→ $\frac{5 \times 500\,000}{1}$ = 2500000 Convert into Km = 25 Km

2nd map

map : Real
1 : 1250000
× 2500000

map	1	2
real	1250 000	2500 000

or

→ $\frac{2500000}{1250000}$ = 2 cm

The real distance between the two cities will be the same even if we changed the map's the drawing scale of it. Thats why we used the same real lengt in booth.

17) drawing : Real

1 : 200

20 : x → Real length = $\frac{200 \times 20}{1} = 4000\ cm$

$= 40\ m$

$A = L \times w \rightarrow w = \frac{A}{L} = \frac{1200}{40} = 30\ m$

18) drawing : Real

1 : 1000

x : 50 → length in drawing = $\frac{1 \times 50}{1000} = 0.05$

$= 5\ cm$

Area in drawing = $5 \times 5 = 25\ cm^2$

19) $h = 187.2\ m$, height in picture = 13 cm

a. drawing scale = $\frac{\text{drawing height}}{\text{Real height}} = \frac{13}{18720} = \frac{1}{1440}$

b. drawing : Real

1 : 1440

3.5 : x → $\frac{1440 \times 3.5}{1} = 5040\ cm$

$= 50.4\ m.$

20) The magnifying ratio is the scale

a) $= \frac{\text{drawing}}{\text{Real}} = \frac{42}{18} = \frac{7}{3}$ or 7 : 3

b) map : Real

7 : 3

x : 27 → $x = \frac{7 \times 27}{3} = 63\ mm$

$= 6.3\ cm$

or

map	7	x
real	3	27

a) $A = L \times w$, $w = \frac{A}{L} = \frac{4800}{60} = 80\ m$

Then → $L_{real} = 80\ m$, $w_{real} = 60\ m$

b) scale = $\frac{1}{1000}$

To Find the drawing Length:

drawing : Real

1 : 1000

$\times$: 80 → L. in drawing = $\frac{80}{1000}$ = 0.08

To Find the drawing width:

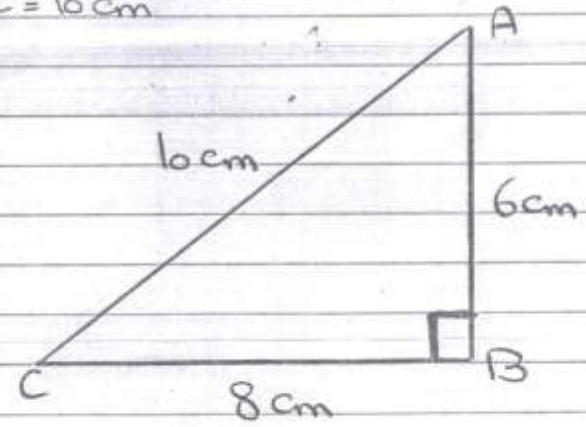
drawing : Real

1 : 1000

$\times$: 60 → w. in drawing = $\frac{60}{1000}$ = 0.06

c) After drawing measure AC = 6 cm using the ruler

AC = 10 cm



22) Boys : Girls
4 : 5
16 : → Girls = $\frac{5 \times 16}{4}$ = 20 girls

Check → $\frac{4}{5}$ x the girls = $\frac{4}{5} \times 20 = 16$

23) $\frac{19}{16}$ x sum = 95

Sum = $95 \div \frac{19}{16}$ or $95 \times \frac{16}{19} = 80$

1st : 2nd : sum
7 : 9 : 16
: 80

1st = $\frac{7 \times 80}{16} = 35$, 2nd = $\frac{9 \times 80}{16} = 45$

Check → 35 + 45 = 80.

24) L : w : P
5 : 7 : 24
: 192

$P = (L + w) \times 2$
$= (5 + 7) \times 2$
$= 24$

$L = \frac{5 \times 192}{24} = 40$ cm , $w = \frac{7 \times 192}{24} = 56$ cm

Check → $(40 + 56) \times 2 = 192$

part1 : part2 : sum
25) 2 : 3 : 5
: 30

part 1 = $\frac{2 \times 30}{5} = 12$ cm, part 2 = $\frac{3 \times 30}{5} = 18$ cm

- part 1 in the shape of square → P = 12 cm → $S = \frac{12}{4}$
- part 2 in the shape of an equilateral triangle

P = 18 cm → $S = \frac{P}{3} = \frac{18}{3} = 6$ cm.

26) $45 \times \frac{76}{100} = 34.2$, $\frac{76}{100} \times 45 = 34.2$

27) Salery : Savings
936 : 117
8 : 1

28) The total weight = Copper + Gold
70 = 7 + Gold
Gold = 70 − 7 = 63 gm
The percentage = $\frac{63}{70} \times 100 = 90\%$

29) Before : profit : After
100 000 : 30 000 : 130 000
100 : x
percentage = $\frac{30000 \times 100}{100000} = 30\%$

30)
Before : loss : After
100 : x
65 000 : 13 000 : 52 000
loss = 65000 − 52000 = 13000
percentage of loss = $\frac{13000 \times 100}{65000} = 20\%$

31) Before : discount : After
100 : 20 : 80
: 12
price before = $\frac{100 \times 12}{80} = 15$ L.E

32) Before : discount . After
100 : 20 : 80
240 :
price after discount = $\frac{80 \times 240}{100}$ = 192 L.E

33) 1st : 2nd : 3rd
% 42 : 28 : 30
pounds : 36000

1st = $\frac{42 \times 36000}{30}$ = 50400 Pounds

2nd = $\frac{28 \times 36000}{30}$ = 33600 Pounds

The total percentage of profit for the three of them is 100%
Then the third = 42% + 28% = 70%
100% - 70% = 30%.

34) First: $\frac{30}{150} \times 100 = 20\%$

second: $\frac{15}{180} \times 100 = 8.33\%$

35) Before: interest : After
100 : 9.5 : 109.5
20000 :
After = $\frac{20000 \times 109.5}{100}$ = 21900 L.E

x/ 100% is the total percent of the notebook
25% → sold
Then 100% − 25% = 75% (not sold)

% : notebooks
75 : 60
25 :
Sold notebooks = $\frac{60 \times 25}{75}$ = 20 notebook

Total no. of notebooks = Sold + unsold
= 20 + 60
= 80 notebooks.

37)
Step ① Before: loss: After
100 : 10 : 90
: 1800
Buying price (Before) = $\frac{100 \times 1800}{90}$ = 2000 L.E

step ② Now he wants to have a profit 8% on the Buying price

Before: profit: After
100 : 8 : 108
2000
selling price (After) = $\frac{108 \times 2000}{100}$ = 2160 L.E

38) Buying price: profit: selling price
100 : 6 : 106
20 000
selling price = $\frac{20\,000 \times 106}{100}$ = 21200 L.E
→ 21624 − 21200 = 424 L.E
Cost of storing

39) The price of all the boxes
$40 \times 45 = 1800$ L.E

step ①
- 80% of the apples was sold with profit 18%

Ans → $\frac{80}{100} \times 1800 = 1440$ L.E

Before : profit : After
100 : 18 : 118
1440 : : *

After = $\frac{118 \times 1440}{100} = \boxed{1699.2 \text{ L.E}}$

step ② The remainder of the apples was sold with loss 15%

→ The remainder = 1800 - 1440 = 360 L.E

Before : loss : After
100 : 15 : 85
360 *

After = $\frac{360 \times 85}{100} = \boxed{306 \text{ L.E}}$

selling price of all apples = 306 + 1699.2
= 2005.2 L.E
≈ 2005 L.E

40) $v = 42000 \text{ mm}^3$
a) $42000 \div 1000 = 42 \text{ cm}^3$
b) $42 \div 1000 = 0.042$ L

41) Bottle capacity = $\frac{3}{4}$ L, small bottle capacity 2
$\frac{3}{4}$ L $\times 1000 = 750 \text{ cm}^3$
number of bottles = $\frac{750}{25} = 20$ bottle.

$V = 2.1 \times 2.1 \times 2.1 = 9.261\ cm^3$
$\simeq 9\ cm^3$

43) $V = 125\ cm^3$
$s = 5\ cm$, $A = 5 \times 5 = 25\ cm^2$

44) $A = 49\ cm^2 \rightarrow s = 7\ cm$
$V = 7 \times 7 \times 7 = 343\ cm^3$

45) Sum of 12 edges = 96 cm
Then one edge $= \frac{96}{12} = 8\ cm$
$V = 8 \times 8 \times 8 = 512\ cm^3$

46) First: $V = 10.5 \times 10.5 \times 10.5 = 1157.625\ cm^3$
$\simeq 1158\ cm^3$
Second: $1158 \times 1000 = 1158000\ mm^3$

47) $V_1 = 8 \times 8 \times 8 = 512\ cm^3$
$V_2 = 2 \times 2 \times 2 = 8\ cm^3$
no. of cubes $= \frac{512}{8} = 64$ cubes

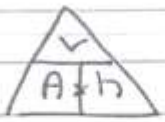
48) $V_{box} = 36 \times 36 \times 36 = 46656\ cm^3$
$V_{soap} = 9 \times 9 \times 9 = 729\ cm^3$
no. of bars $= \frac{V_{box}}{V_{soap}} = \frac{46656}{729} = 64$ bars

49) The external edge = 62 cm
The internal edge $= 62 - (2+2) = 58\ cm$
$V = 58 \times 58 \times 58 = 195112\ cm^3 \div 1000 = 195.112\ L$

50) $V_{cuboid} = 0.$ [illegible]

51) $h = ??\ cm$, $V = 4.8\ dm^3$, $A = 240\ cm^2$

$V = 4.8 \times 1000 = 4800\ cm^3$



$h = \frac{V}{A} = \frac{4800}{240} = 20\ cm$

52) $V_{tank} = 7 \times 5 \times 9 = 315\ m^3$

$\frac{1}{3} \times 315 = 105\ m^3$ ← volume of water that fills $\frac{1}{3}$ the tank.

53) $V_1 = 4 \times 5 \times 7 = 140 cm$

$V_2 = A \times h$

$= 16 \times 9 = 144\ cm^3$

The diff. $= 144 - 140 = 4\ cm^3$

54) volume of water $= 10L \times 1000 = 10000\ cm^3$

volume of vessel $= 25 \times 25 \times 25 = 1562$

$A = 25 \times 25 = 625\ cm^2$

$h_{water} = \frac{V_{water}}{A} = \frac{10000}{625} = 16\ cm$

55) $C = 72000\ L$ (dm), $h = 4\ m$ ($\times 1000$), $A = ??$

$A = \frac{72000}{4000} = 18\ dm^2$ $= 4000\ dm$

56) $V_{brick} = 10 \times 22 \times 8 = 1760\ cm^3$

$V_{wall} = 1760 \times 100 = 176000\ cm^3$

57) $V_{cube} = V_{cuboid} = 36 \times 36 \times 36$

$= 46656\ cm^3$

A of cuboid base $= 48 \times 27 = 1296\ cm^2$

$h = \frac{V}{A} = \frac{46656}{1296} = 36\ cm$

58) $V_{boxes} = 50 \times 50 \times 50 = 125000\ cm^3$

$V_{container} = 3.5 \times 2.5 \times 2 = 17.5\ m^3 \times 1000000$

$= 17500000\ cm^3$

$no. = \frac{V_{container}}{V_{boxes}} = \frac{17500000}{125000} = 140$ box.

59) $V_{tank} = 12 \times 25 \times 16 = 4800\ dm^3 \div 1000$

$= 4.8\ m^3$

First: after one hour.

Second: After $\frac{1}{4}$ hour will Fill $\frac{1}{4}$ of the tank volume after $\frac{1}{4}$ an hour.

→ then $\frac{1}{4} \times 4.8 = 1.2\ m^3$

A of the base $= 12 \times 25$

$= 300\ dm^2 \div 100$

$= 3\ m^2$

h of water $= \frac{V}{A} = \frac{1.2}{3} = 0.4\ m$