1
$$= \frac{5}{3} \div \frac{1}{9}$$
$$= \frac{5}{3} \times \frac{9}{1}$$
$$= 15$$

2
$$\frac{2}{3} \times 900g = \_\_\_ kg$$
$$600g = \_\_\_ kg$$
$$\frac{600}{1000} = 0.6kg$$

3

2	858
3	429
11	143
13	13
	1

$$858 = 2 \times 3 \times 11 \times 13$$

4
$$3m - 5m = {}^-2 - 4$$
$${}^-2m = {}^-6$$
$$\frac{{}^-2m}{{}^-2} = \frac{{}^-6}{{}^-2}$$
$$m = 3$$

5
$$1960 = 1000 + 900 + 60$$
$$= M + CM + LX$$
$$= MCMLX$$

6

2	21	45	50
3	21	45	25
3	7	15	25
5	7	5	25
5	7	1	5
7	7		1
	1		

$$= 2 \times 3 \times 3 \times 5 \times 5 \times 7$$
$$= 3,150$$

7
$$6S^2 = 150cm^2$$
$$\frac{6S^2}{6} = \frac{150cm^2}{6}$$
$$S^2 = 25cm^2$$
$$\sqrt{S^2} = \sqrt{25cm^2}$$
$$S = 5cm$$

$$V = S \times S \times S$$
$$= (5 \times 5 \times 5)cm^3$$
$$= 125cm^3$$

8
$$= 10y + 5x + 2x - 8y$$
$$= 10y - 8y + 5x + 2x$$
$$= 2y + 7x$$

9
$$x = 40° + 20°$$
$$= 60°$$

10

2	x	8	12
5	17	65	y

$$x^2 + 1 = y \qquad x^2 + 1 = y$$
$$x^2 + 1 = 17 \qquad 12^2 + 1 = y$$
$$x^2 = 17 - 1 \qquad 12 \times 12 + 1 = y$$
$$\sqrt{x^2} = \sqrt{16} \qquad 144 + 1 = y$$
$$x = 4 \qquad 145 = y$$

11
$$1^{st} no = x + 1$$
$$2^{nd} no = x + 3$$
$$3^{rd} no = x + 5$$
$$3x + 9 = 57$$
$$3x = 57 - 9$$
$$\frac{3x}{3} = \frac{48}{3}$$
$$x = 16$$

$$1^{st} = 16 + 1 = 17$$
$$2^{nd} = 16 + 3 = 19$$
$$3^{rd} = 16 + 5 = 21$$

12
$$= \left(\frac{32}{10} \times \frac{28}{10}\right) \div \left(\frac{7}{10} \times \frac{8}{1}\right)$$
$$= \frac{32}{10} \times \frac{28}{10} \times \frac{10}{7} \times \frac{1}{8}$$
$$= \frac{8}{5}$$
$$= 1.6$$

13
Let that number be x
$$= 100\% + 15\%$$
$$= 115\%$$
$$\frac{115}{100} \times x = 3,450$$
$$x = \frac{3,450 \times 100}{115}$$
$$x = 3,000 Frw$$

14
$$= (60 \times 60)sec + (60 \times 3)sec + (2 \times 1)sec$$
$$= 3600sec + 180sec + 2sec$$
$$= 3,782sec$$

15
$$P = SP - CP$$
$$= 2,640 Frw - 2,400 Frw$$
$$= 240 Frw$$
$$\%P = \frac{P}{CP} \times 100$$
$$= \frac{240 \times 100}{2,400}$$
$$= 10\%$$

16
$$= 7 + 0 + 4 + 7 + 0$$
$$= 18$$
The sum of digits (18) is divisible by 9 therefore 70,470 is divisible

17
$$= m^2 + 2ab - n$$
$$= m \times m + 2 \times a \times b - n$$
$$= 2 \times 2 + 2 \times 3 \times {}^-1 - {}^-4$$
$$= 4 - 6 + 4$$
$$= 4 + 4 - 6$$
$$= 8 - 6$$
$$= 2$$

18
Total parts = 2 + 3 = 5
$$John = \frac{2}{5} \times 28,000 = 11,200 Frw$$
$$Peter = \frac{3}{5} \times 28,000 = 16,800 Frw$$

19
$$Ext = 180° - Int$$
$$= 180° - 120°$$
$$= 60°$$
$$n = \frac{360°}{Ext} = \frac{360°}{60°} = 6 sides$$

20
$$M = D \times N$$
$$= \frac{126kg}{100m^3} \times 60m^3$$
$$= 75.6kg$$

21
$$D = S \times T$$
$$= 60km/hr \times 1\frac{20}{60}hr$$
$$= 60km/hr \times 1\frac{1}{3}hr$$
$$= 60km/hr \times \frac{4}{3} = 80km$$

22
$$= (212 - 141) + 1$$
$$= 71 + 1$$
$$= 72 pages$$

23
$$A = \frac{b \times h}{2}$$
$$= \frac{7cm \times 16cm}{2}$$
$$= 56cm^2$$

24
$$5 men = 4 days$$
$$1 man = (4 \times 5) days$$
$$8 men = \left(\frac{4 \times 5}{8}\right) days$$
$$= 2\frac{1}{2} days$$

25
2 , 4 , 12 , 48 , 240 , 1440
×2 ×3 ×4 ×5 ×6

26
$$35km = 2.5 litres$$
$$1km = \left(\frac{2.5}{35}\right) litres$$
$$280km = \left(\frac{2.5 \times 280}{35}\right) l$$
$$280km = 20 litres$$
$$1 litre = 600F$$
$$20 litres = (600 \times 20) Frw$$
$$= 12,000 Frw$$

27
$$Rev = \frac{Distance}{Circumference \ of \ wheel}$$
$$C = \pi D$$
$$= \frac{22}{7} \times 70cm$$
$$= 220cm$$
$$= \frac{(8.8 \times 100,000)cm}{220cm}$$
$$= \frac{880,000cm}{220cm}$$
$$Rev = \frac{8.8km}{220cm} \qquad Rev = 4,000$$

28	29	30
$A = (Trapezium) + (Trapezium)$	Cost of potatoes $= p$, beans $= (p + 70)$	$I = P \times T \times \dfrac{R}{100}$
$= \dfrac{h(a+b)}{2} + \dfrac{h(a+b)}{2}$	$3p + 4(p + 70) = 840$	$12,000 = 800,000 \times \dfrac{3}{12} \times \dfrac{R}{100}$
$= \dfrac{5(5+6)}{2} cm^2 + \dfrac{3(6+4)}{2} cm^2$	$3p + 4p + 280 = 840$	$12,000 = 2,000R$
$= \dfrac{5 \times 11}{2} cm^2 + \dfrac{3 \times 10}{2} cm^2$	$7p = 840 - 280$	$\dfrac{12,000}{2,000} = \dfrac{2,000R}{2,000}$
$= 27.5 cm^2 + 15 cm^2$	$\dfrac{7p}{7} = \dfrac{560}{7}$	$R = 6\%$
$= 42.5 cm^2$	$p = 80F$	
	$Beans = (80 + 70) = 150 Frw/kg$	

SECTION B

31	32	33
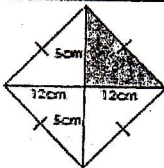
31

$D_1 = 10cm$
$D_2 = 24cm$
$A = \dfrac{D_1 \times D_2}{2}$
$= \dfrac{10cm \times 24cm}{2}$
$= 120 cm^2$

Part (b)

$H = \sqrt{b^2 + h^2}$
$= \sqrt{(5 \times 5)cm^2 + (12 \times 12)cm^2}$
$= \sqrt{25cm^2 + 144cm^2}$
$= \sqrt{169cm^2}$
$= 13cm$

$P = S \times 4$
$= 13cm \times 4$
$= 52cm$

32

Numerator
$= \dfrac{1}{5} \times \left(\dfrac{27}{4} - \dfrac{475}{100}\right) \times \left(\dfrac{3875}{1000} - \dfrac{19}{8}\right)$
$= \dfrac{1}{5} \times \left(\dfrac{27}{4} - \dfrac{19}{4}\right) \times \left(\dfrac{31}{8} - \dfrac{19}{8}\right)$
$= \dfrac{1}{5} \times \left(\dfrac{27 - 19}{4}\right) \times \left(\dfrac{31 - 19}{8}\right)$
$= \dfrac{1}{5} \times \dfrac{8}{4} \times \dfrac{12}{8}$
$= \dfrac{3}{5}$

Denominator
$= \left(\dfrac{15}{10} \times \dfrac{15}{10}\right) \div \dfrac{5}{2}$
$= \dfrac{15}{10} \times \dfrac{15}{10} \times \dfrac{2}{5}$
$= \dfrac{9}{10}$

Whole statement
$= Numerator \div Denominator$
$= \dfrac{3}{5} \div \dfrac{9}{10} = \dfrac{3}{5} \times \dfrac{10}{9} = \dfrac{2}{3}$

33

First commission
$= \dfrac{10}{100} \times 50,000,000 Frw$
$= 5,000,000 Frw$
$Rest = 90,000,000 - 50,000,000$
$= 40,000,000 Frw$

Second commission
$= \dfrac{3}{100} \times 40,000,000 Frw$
$= 1,200,000 Frw$

$Tax = \dfrac{5}{100} \times 90,000,000 Frw$
$= 4,500,000 Frw$

Importer receives
$=$ Total sales $-$ (Tot. commission + tax)
$= 90,000,000 - (5,000,000 + 1,200,000 + 4,500,000)$
$= 90,000,000 - 10,700,000$
$= 79,300,000 Frw$

34	35	36

34

Part (a)

$LCD = 2x$
$2x\left(\dfrac{2x-4}{x}\right) - 2x\left(\dfrac{6x+2}{2x}\right) = 2x(0)$
$2(2x - 4) - (6x + 2) = 0$
$4x - 8 - 6x - 2 = 0$
$4x - 6x - 8 - 2 = 0$
$^-2x - 10 = 0$
$^-2x = 10$
$\dfrac{^-2x}{^-2} = \dfrac{10}{^-2}$
$x = ^-5$

Part (b)

Let that number be x
$x \times 4 = x + 6$
$4x = x + 6$
$4x - x = 6$
$3x = 6$
$\dfrac{3x}{3} = \dfrac{6}{3}$
$x = 2$

35

Part (a)

$11yrs = 360° - (85 + 45 + 90 + 55 + 60)°$
$= 360° - 335°$
$= 25°$

$Pupils = \dfrac{10 \times 360}{25} = 144 \; pupils$

Part (b)

$= \dfrac{144}{360} = \dfrac{2}{5}$

$12yrs = \dfrac{2}{5} \times 90 = 36 \; pupils$

$13yrs = \dfrac{2}{5} \times 45 = 18 \; pupils$

$14yrs = \dfrac{2}{5} \times 85 = 34 \; pupils$

$15yrs = \dfrac{2}{5} \times 55 = 22 \; pupils$

$16yrs = \dfrac{2}{5} \times 60 = 24 \; pupils$

36

$c = 60°$ (Corresponding angles)

$b = 180° - (40° + 60°)$ (angles of triangle)
$= 180° - 100°$
$= 80°$

$d = b = 80°$ (opposite angles)

$e = 180° - b$ (angles on a straight line)
$= 180° - 80°$
$= 100°$

$a = e = 100°$ (opposite angles)

$g = d = 80°$ (alternate angles)

$f = a = 100°$ (corresponding angles)

37

$x - axis$
$20 \, sq = 1hr$
$20sq = 60min$
$1sq = \dfrac{60}{20} min$
$1sq = 3min$

$y - axis$
$10 \, sq = 10km$
$1sq = 1km$

(a). 10 sq on y-axis = 10km

(b). 10 sq on x-axis = (10 x 3) = 30 min
Time = 10:30am

(c). 5 sq on y-axis = 5km

(d). At 11:00am = 15 sq on y-axis
= 15km

(e). $AS = \dfrac{Total \; distance}{Total \; time \; taken} = \dfrac{20km + 5km + 15km}{30min + 30min + 1hour} = \dfrac{40km}{2hr} = 20km/hr$