

YEAR 2008 WORKING AND ANSWERS

SECTION A

<p>1 Hint: Distributive property $= 600(0.75 + 0.25)$ $= 600 \times 1$ $= 600$</p>	<p>2 Eleven million = 11,000,000 eleven thousand = 11,000 eleven = 11 $\begin{array}{r} 11,000,000 \\ + 11,000 \\ + 11 \\ \hline 11,011,011 \end{array}$</p>	<p>3 $= \frac{6}{5} + \frac{3}{10}$ (LCD = 10) $= \frac{12+3}{10} = \frac{15}{10} = \frac{3}{2} = 1\frac{1}{2}$</p>																												
<p>4 Hint: Collect like terms positives first $= 2x + 5x - 3x - 4x + 5y + y$ $= 7x - 7x + 6y$ $= 6y$</p>	<p>5 $\begin{array}{r} 6 \text{ 1m} \quad 1 \text{ 0s} \quad = \frac{120}{60} \text{ hr} \\ + 5 \text{ 8m} \quad 5 \text{ 0s} \\ \hline 11 \text{ 9m} \quad 6 \text{ 0s} \\ + 1 \quad -60 \\ \hline 12 \text{ 0m} \quad 0 \text{ 0s} \\ = 2 \text{ hr} \end{array}$</p>	<p>6 $= \frac{1}{3} \div \frac{1}{12}$ $= \frac{1}{3} \times \frac{12}{1}$ $= 4 \text{ twelfths}$</p>																												
<p>7 $5x - 10 = 2x - 7$ $5x - 2x = -7 + 10$ $3x = 10 - 7$ $\frac{3x}{3} = \frac{3}{3}$ $x = 1$</p>	<p>8 <table border="1" style="display: inline-table; vertical-align: middle;"> <tr><td>2</td><td>1296</td></tr> <tr><td>2</td><td>648</td></tr> <tr><td>2</td><td>324</td></tr> <tr><td>2</td><td>162</td></tr> <tr><td>3</td><td>81</td></tr> <tr><td>3</td><td>27</td></tr> <tr><td>3</td><td>9</td></tr> <tr><td>3</td><td>3</td></tr> <tr><td></td><td>1</td></tr> </table> $1296 = 2^2 \times 2^2 \times 3^2 \times 3^2$ $\sqrt{1296} = 2 \times 2 \times 3 \times 3$ $= 36$</p>	2	1296	2	648	2	324	2	162	3	81	3	27	3	9	3	3		1	<p>9 2, 5, 10, 17, 26, 37 <table style="margin-left: auto; margin-right: auto;"> <tr><td style="border: 1px solid black; width: 20px; height: 15px;"></td><td style="border: 1px solid black; width: 20px; height: 15px;"></td><td style="border: 1px solid black; width: 20px; height: 15px;"></td><td style="border: 1px solid black; width: 20px; height: 15px;"></td><td style="border: 1px solid black; width: 20px; height: 15px;"></td></tr> <tr><td style="text-align: center;">+3</td><td style="text-align: center;">+5</td><td style="text-align: center;">+7</td><td style="text-align: center;">+9</td><td style="text-align: center;">+11</td></tr> </table></p>						+3	+5	+7	+9	+11
2	1296																													
2	648																													
2	324																													
2	162																													
3	81																													
3	27																													
3	9																													
3	3																													
	1																													
+3	+5	+7	+9	+11																										
<p>10 <table border="1" style="display: inline-table; vertical-align: middle;"> <tr><td>12</td><td>16</td><td>20</td><td>24</td></tr> <tr><td>9</td><td>12</td><td>15</td><td>18</td></tr> </table> Upper numbers are multiples of 4 Lower numbers are multiples of 3 $= (3 \times 3), (3 \times 4), (3 \times 5), (3 \times 6)$ $= 9, 12, 15, 18$</p>	12	16	20	24	9	12	15	18	<p>11 (a). Started Monday 12:00pm Hint: Change 100hrs to days $= (100 \div 24) \text{ days}$ $= 4 \text{ days and } 4 \text{ hrs}$ Time = 12:00pm + 4hrs = At 1600hrs or (4:00pm) (b). = Monday + 4 days = Friday</p>	<p>12 LCD = 60 $\left(\frac{7}{20} \times 60\right) \text{ --- } \left(\frac{11}{30} \times 60\right)$ 21 --- 22 $\frac{7}{20} < \frac{11}{30}$</p>																				
12	16	20	24																											
9	12	15	18																											
<p>13 $= 5 \text{ kg} - 1.5 \text{ kg}$ $= 3.5 \text{ kg}$ $= \frac{3.5}{5} = \frac{3.5 \times 10}{5 \times 10} = \frac{35}{50} = \frac{7}{10}$ Ratio = 7:10</p>	<p>14 $I = P \times T \times \frac{R}{100}$ $= 300,000 \times \frac{4}{12} \times \frac{8}{100}$ $= 8,000 \text{ Frw}$</p>	<p>15 $CA = 2\pi rh$ $= 2 \times \frac{22}{7} \times \frac{35}{10} \text{ cm} \times 15 \text{ cm}$ $= 330 \text{ cm}$</p>																												
<p>16 <table border="1" style="display: inline-table; vertical-align: middle;"> <tr><td>x</td><td>25</td><td>27</td><td>28</td><td>29</td><td>30</td></tr> <tr><td>f</td><td>3</td><td>1</td><td>2</td><td>1</td><td>2</td></tr> </table> (a). Mode = 25 (b) Median 25, 25, 25, 27, <u>28</u>, 28, 29, 30, 30 Median = 28</p>	x	25	27	28	29	30	f	3	1	2	1	2	<p>17 $= 100\% + 5\%$ $= 105\%$ $\frac{105}{100} \times CP = 525,000$ $105CP = 525,000 \times 100$ $\frac{105CP}{105} = \frac{525,000 \times 100}{105}$ $CP = 500,000 \text{ Frw}$</p>	<p>18 Bread Salt 500g = 5g $1 \text{ g} = \left(\frac{5}{500}\right) \text{ g}$ $150 \text{ g} = \left(\frac{5}{500} \times 150\right) \text{ g}$ $= 1.5 \text{ g of salt}$</p>																
x	25	27	28	29	30																									
f	3	1	2	1	2																									
<p>19 $S = \frac{P}{4} = \frac{100 \text{ cm}}{4} = 25 \text{ cm}$ $A = S \times S$ $= 25 \text{ cm} \times 25 \text{ cm}$ $= 625 \text{ cm}^2$</p>	<p>20 $Ext = 180^\circ - Int. \text{ angle}$ $= 180^\circ - 150^\circ$ $= 30^\circ$ $n = \frac{360^\circ}{Ext}$ $= \frac{360^\circ}{30^\circ} = 12 \text{ sides}$</p>	<p>21 $= \left(\frac{25}{10} \times 10,000\right) + \left(\frac{11,000}{100}\right)$ $= 25,000 \text{ m}^2 + 110 \text{ m}^2$ $= 25,110 \text{ m}^2$</p>																												
<p>22 $D = 6 \text{ cm}, r = \frac{D}{2} = \frac{6 \text{ cm}}{2} = 3 \text{ cm}$ $V = \frac{1}{3} \pi r^2 h$ $= \frac{1}{3} \times \frac{22}{7} \times 3 \text{ cm} \times 3 \text{ cm} \times 14 \text{ cm}$ $= 132 \text{ cm}^3$</p>	<p>23 $V = M \div D$ $= 178 \text{ g} \div \frac{89}{10} \text{ g/cm}^3$ $= 178 \text{ g} \times \frac{10}{89} \text{ g/cm}^3$ $= 20 \text{ cm}^3$</p>	<p>24 Open interval (straight line) $D = 2.16 \text{ km}$ $Li \times Ni = 2.16 \text{ km}$ $1.8 \times (Np - 1) = \left(\frac{216}{100} \times 1000\right) \text{ m}$ $1.8Np - 1.8m = 2160 \text{ m}$ $1.8Np = 2160 \text{ m} + 1.8m$ $\frac{1.8Np}{1.8} = \frac{2161.8}{1.8}$ $Np = 1201 \text{ trees}$</p>																												

$$= 4 \times m + 2 \times x - y$$

$$= 4 \times 2 + 2 \times 0 - 3$$

$$= 8 + 0 - 3$$

$$= 3 - 8$$

$$= -5$$

26 $1^{st} \text{ distance} = 2^{nd} \text{ distance}$

$$S \times T = S \times T$$

$$40 \times \left(\frac{x+10}{60}\right) = 60 \times \frac{x}{60}$$

$$2\left(\frac{x+10}{3}\right) = x$$

$$2x - 20 = 3x$$

$$20 \text{ km} = 3x - 2x$$

$$x = 20 \text{ km}$$

The distance is 20 km

27 $\text{John} = x$

$$\text{Mary} = (2 \times x) = 2x$$

$$\text{Joy} = \left(\frac{1}{2} \times 2x\right) = x$$

$$x + 2x + x = 350,000 \text{ Frw}$$

$$\frac{4x}{4} = \frac{350,000}{4}$$

$$x = 87,500 \text{ Frw}$$

$$\text{John} = 87,500 \text{ Frw}$$

$$\text{Mary} = (2 \times 87,500) = 175,000 \text{ Frw}$$

$$\text{Joy} = 87,500 \text{ Frw}$$

28 1^{st} year

$$= \frac{P \times T \times R}{100}$$

$$= \frac{1,000,000 \times 1 \times 12}{100}$$

$$I = 120,000 \text{ Frw}$$

$$A = 1,000,000 \text{ F} + 120,000 \text{ F}$$

$$= 1,120,000 \text{ Frw}$$

2^{nd} year

$$= \frac{P \times T \times R}{100}$$

$$= \frac{1,120,000 \times 1 \times 12}{100}$$

$$I = 134,400 \text{ Frw}$$

$$A = 1,120,000 \text{ F} + 134,400 \text{ F}$$

$$= 1,254,400 \text{ Frw}$$

29 LCD = 360

$$\frac{2}{5} = \frac{2}{5} \times 360 = 144 \dots \dots (ii)$$

$$\frac{4}{9} = \frac{4}{9} \times 360 = 160 \dots \dots (iii)$$

$$\frac{11}{40} = \frac{11}{40} \times 360 = 99 \dots \dots (i)$$

$$= \frac{11}{40}, \frac{2}{5}, \frac{4}{9}$$

30 $4s + 3s + 2s = 180^\circ(n-2)$

$$9s = 180^\circ(3-2)$$

$$9s = 180^\circ \times 1$$

$$\frac{9s}{9} = \frac{180^\circ}{9}$$

$$s = 20^\circ$$

$$1^{st} \text{ angle} = 20^\circ \times 4 = 80^\circ$$

$$2^{nd} \text{ angle} = 20^\circ \times 3 = 60^\circ$$

$$3^{rd} \text{ angle} = 20^\circ \times 2 = 40^\circ$$

SECTION B

31 $H = \sqrt{b^2 + h^2}$

$$= \sqrt{(5 \times 5) \text{ cm}^2 + (12 \times 12) \text{ cm}^2}$$

$$= \sqrt{25 \text{ cm}^2 + 144 \text{ cm}^2}$$

$$= \sqrt{169 \text{ cm}^2}$$

$$= 13 \text{ cm}$$

$$\text{TSA} = (b \times h) + L(b + h + H)$$

$$= (5 \times 12) \text{ cm}^2 + 8(5 + 12 + 13) \text{ cm}^2$$

$$= 60 \text{ cm}^2 + 8 \times 30 \text{ cm}^2$$

$$= 60 \text{ cm}^2 + 240 \text{ cm}^2$$

$$= 300 \text{ cm}^2$$

32 Part (a)

$$4x - 4 = 2x + 8$$

$$4x - 2x = 8 + 4$$

$$2x = 12$$

$$\frac{2x}{2} = \frac{12}{2}$$

$$x = 6$$

Part (b)

LCD = 6 (Multiply the 3 terms by LCD)

$$6\left(\frac{x}{3}\right) + 6(1) = 6\left(\frac{x-2}{2}\right)$$

$$2x + 6 = 3(x-2)$$

$$2x + 6 = 3x - 6$$

$$2x - 3x = -6 - 6$$

$$-x = -12$$

$$\frac{-x}{-1} = \frac{-12}{-1}$$

$$x = 12$$

33

A	+	B	=	Mix
120	+	x	=	(120+x)
200		240		210

$$(120 \times 200) + (240 \times x) = 210(120+x)$$

$$24,000 + 240x = 25,200 + 210x$$

$$240x - 210x = 25,200 - 24,000$$

$$30x = 1,200$$

$$\frac{30x}{30} = \frac{1,200}{30}$$

$$x = 40 \text{ kg}$$

The second type has 40 kg

34

$$= \left(\frac{5}{4} - \frac{7}{10}\right) + \left(\frac{2}{3} + \frac{4}{9}\right) - \frac{1}{4}$$

$$= \left(\frac{25-14}{20}\right) + \left(\frac{6+4}{9}\right) - \frac{1}{4}$$

$$= \frac{11}{20} + \frac{10}{9} - \frac{1}{4}$$

$$= \frac{99 + 200 - 45}{180}$$

$$= \frac{299 - 45}{180} = \frac{254}{180} = \frac{127}{90} = 1\frac{37}{90}$$

35 $x + 2x + 2.5x + 3x + 3.5x = 180^\circ(n-2)$

$$12x = 180^\circ(5-2)$$

$$12x = 180^\circ \times 3$$

$$12x = 540^\circ$$

$$\frac{12x}{12} = \frac{540^\circ}{12}$$

$$x = 45^\circ$$

$$2x = 45^\circ \times 2 = 90^\circ$$

$$2.5x = 45^\circ \times \frac{25}{10} = 112.5^\circ$$

$$3x = 45^\circ \times 3 = 135^\circ$$

$$3.5x = 45^\circ \times \frac{35}{10} = 157.5^\circ$$

37

$$12s = 96 \text{ cm}$$

$$s = \frac{96 \text{ cm}}{12}$$

$$= 8 \text{ cm}$$

$$\text{TSA} = 6 \times s \times s$$

$$= 6 \times 8 \text{ cm} \times 8 \text{ cm}$$

$$= 384 \text{ cm}^2$$

$$= \frac{384}{100} \text{ dm}^2$$

$$= 3.84 \text{ dm}^2$$

Part (b)

$$V = S \times S \times S$$

$$= 8 \text{ cm} \times 8 \text{ cm} \times 8 \text{ cm}$$

$$= 512 \text{ cm}^3$$

36 Teacher's guidance