

NO.	SOLUTION	COMMENT									
1	(a) Ratio of Beans to Maize Beans : Maize = 3 : 6 = 1 : 2	Ratios should be in the simplest form									
	(b) Let the kilograms of maize be m From the above ratio 1 : 2 1 kg of Beans requires 2 kg of Maize 75,000kg of beans require m kg of maize $m = 75000 \times 2$ $m = 150,000$ kg No. of bags of Maize = $\frac{150,000}{6}$ = 25000 bags	By cross-multiplication Since each bag is 6kg									
	(c) Amount of Beans Quantity of Beans = $3 \times 800 = 2400$ kg Amount for beans = 2400×4500 = 10,800,000 /= Amount of Maize Quantity of Maize = $6 \times 800 = 4800$ kg Amount for maize = 4800×2000 = 9,600,000/= Total amount = $10,800,000 + 9,600,000$ = sh. 20,400,000/=	Summing up the amount for each food item									
2	Let y , x and z represent the number of People, number of kg of Posho and Days respectively; <table border="1"> <thead> <tr> <th>People (y)</th> <th>Posho (x)</th> <th>Days (z)</th> </tr> </thead> <tbody> <tr> <td>4</td> <td>6kg</td> <td>3</td> </tr> <tr> <td>9</td> <td>X</td> <td>21</td> </tr> </tbody> </table> $y \propto x$ $y \propto \frac{x}{z}$ i.e $y = \frac{kx}{z}$ For $y=4$, $x=6$ and $z=3$ $4 = \frac{k(6)}{3} \implies k = 2$ and thus $y = \frac{2x}{z}$ For $y=9$, $z=21$ days $9 = \frac{yz}{2} \implies x = \frac{9 \times 21}{2}, \therefore x = 94.5$ kg So 9 people for the 21 days need 94.5 kg of posho	People (y)	Posho (x)	Days (z)	4	6kg	3	9	X	21	✓ People and Posho are in direct proportion; ✓ People and days with reference to posho are in an inverse proportion;
People (y)	Posho (x)	Days (z)									
4	6kg	3									
9	X	21									

2 **ALTERNATIVELY : Using Unitary Method**

4 people in 3 days consume 6 kg of posho

1 person in 3 days consumes $\frac{6}{4}kg$ of posho

1 person in 1 day consumes $\frac{6}{12}kg$ of posho

1 person in 21 days consumes (0.5 x 21) kg of posho

9 people in 21 days consume (10.5 x 9) kg of posho

\therefore 9 people in 21 days consume 94.5 kg of posho.

Knowledge of direct or inverse proportions of one variable with another is required here.

Always the required quantity should be stated last e.g Posho is the last one

3. The cost C is partly constant
 $C = m$ where m is a constant and it also varies as N, $C = kN$

$$C = m + kN$$

For N = 2 people, C = 13,000

$$13000 = m + k \times 2$$

$$m + 2k = 13000 \dots\dots\dots(i)$$

For N = 5 people, C = 22,000

$$m + 5k = 22,000 \dots\dots\dots(ii)$$

$$\text{Eqn (ii) - Eqn (i)}$$

$$3k = 9000$$

$$\therefore k = 3000$$

Substituting for $k = 3000$ in eqn (i)

$$m = 13000 - 6000$$

$$\therefore m = 7000$$

(a) Equation relating C and N

$$C = 7000 + 3000N$$

(b) For N = 10 people

$$C = 7000 + 3000 \times 10$$

$$= 7000 + 30000$$

$$C = 37,000/= \text{ per day}$$

The constant m should be different from the proportionality constant k .

The equation connecting C and N should be free of constants m and k .

(c) For $N = 8$ people
 $C = 7000 + 3000 \times 8$
 $= 7000 + 24000$
 $C = \text{Sh. } 31,000$ per day

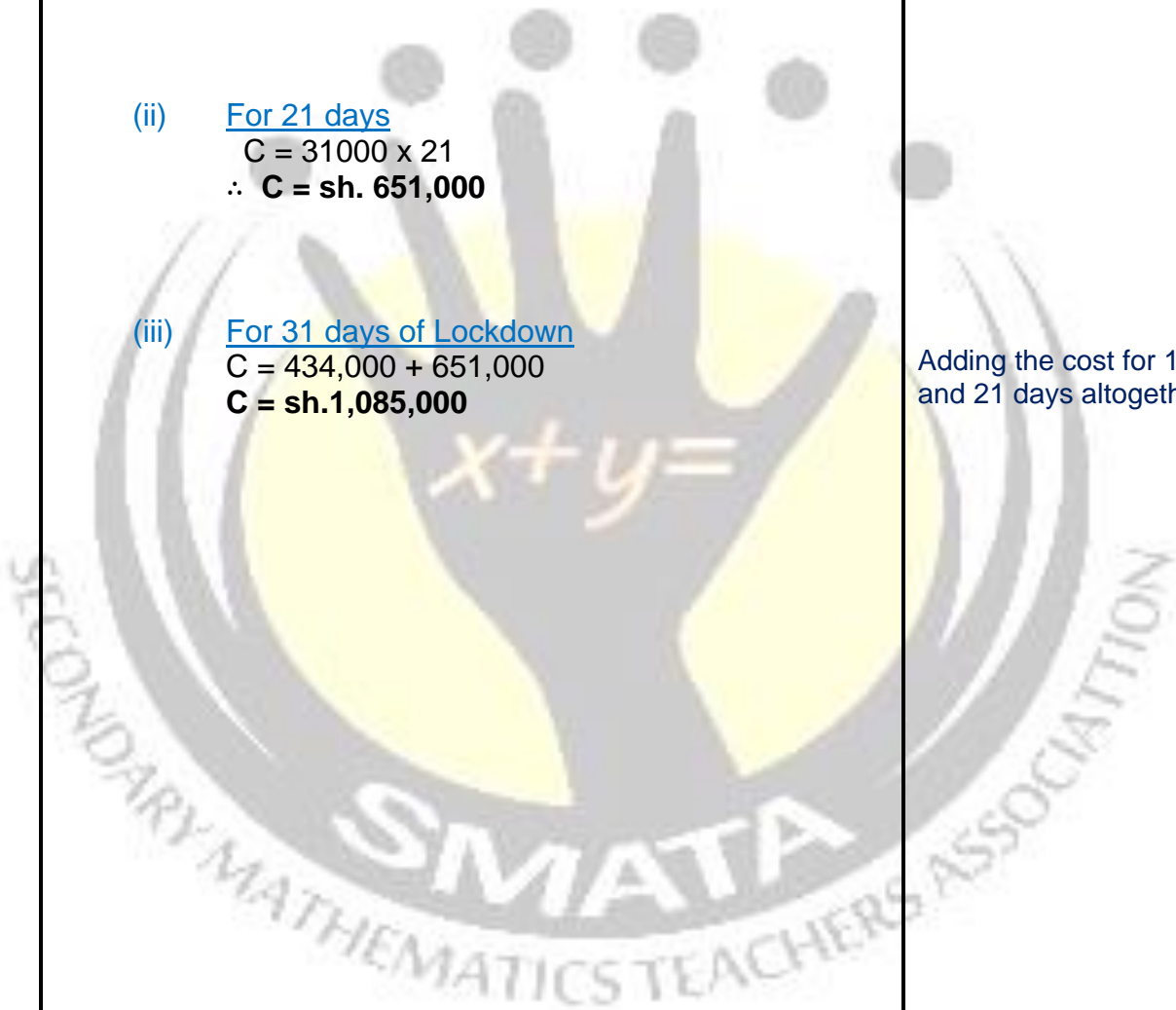
Substituting for N in the equation.

(i) For 14 days
 $C = 31,000 \times 14$
 $\therefore C = \text{sh. } 434,000$

(ii) For 21 days
 $C = 31000 \times 21$
 $\therefore C = \text{sh. } 651,000$

(iii) For 31 days of Lockdown
 $C = 434,000 + 651,000$
 $C = \text{sh. } 1,085,000$

Adding the cost for 14 and 21 days altogether



4	<p>Let x and y be the number of kilograms of grade I and Grade II respectively; Cost per kg of grade I = shs. 2100 Total Cost for Grade I = $2100x$</p> <p>Cost per kg of Grade II = shs. 1600 Total Cost for Grade II = $1600y$</p> <p>Cost per kg of the mixture (blend) = $\frac{\text{Total cost of mixture}}{\text{Number of kg of mixture}}$</p> $= \frac{2100x + 1600y}{(x+y)}$ <p>But cost per kg of the mixture/ blend = 1800</p> $\frac{2100x + 1600y}{(x + y)} = 1800$ <p>By cross-multiplication</p> $2100x + 1600y = 1800x + 1800y$ $2100x - 1800x = 1800y - 1600y$ $300x = 200y$ $\frac{x}{y} = \frac{2}{3}$ $x : y = 2 : 3$ <p>\therefore The trader should mix grade I and Grade II maize flour in the ratio 2 : 3 i.e for every 2 kg of grade I , the trader should add 3 kg of grade II maize flour.</p>	<p>All unknowns must be defined</p>
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PREPARED BY TEAM SMATA 2020
 BROUGHT TO YOU BY PATRICK SSENDUJJA
smatauganda@gmail.com 0702 790 079 / 0772 342 759

STAY HOME STAY SAFE !!! – TOGETHER AGAINST COVID -19 FIGHT