

Word Problem Worksheet  
& Solutions  
ACSJ Paper 2  
P6 Mathematics Prelim 2023

Show your working clearly in the space provided for each question and write your answers in the spaces provided. Questions can be found at the end of the worksheet.

6. a)

$$\text{Number of times 'E' appears in 1}^{\text{st}} \text{ 100 letters} = 100 \div 10 \times 3 = 30$$

b)

$$\text{Number of 'RESILIENCE' word in first 101}^{\text{st}} \text{ 'E'} = 101 \div 3 = 33 \text{ R } 2$$

'RE<sup>100</sup> SILIE<sup>101</sup> NCE

$$\text{Number of letters} = 33 \times 10 + 7 = 337$$

Ans: a) 30  
b) 337

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7. a)

$$\text{Total seashells collected} = 17 + x + 6x - 5 = 7x + 12$$

b)

$$\text{Average} = (7x + 12) = 39 \times 3$$

$$7x + 12 = 117$$

$$7x = (117 - 12) = 105$$

$$x = 105 \div 7 = 15$$

Ans: a)  $7x + 12$   
b) 15

8. a)

$$\text{Percentage of mint candles} = \frac{13}{4+9+13} \times 100 = 50\%$$

b)

$$\text{Number of rose candles} = 153.60 \div 12.80 = 12$$

$$4u \rightarrow 12$$

$$u \rightarrow 12 \div 4 \rightarrow 3$$

$$9u \rightarrow 9 \times 3 \rightarrow 27 \text{ vanilla candles}$$

Ans: a) 50%

b) 27

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9. a)

$$\angle EDF = 56^\circ \quad (\text{DEF isosceles})$$

$$\angle EDC = 48 + 56 = 104^\circ$$

$$\angle FCD = 180 - 104^\circ = 76^\circ \quad (\text{CDEF trapezium})$$

b)

$$\angle BCG = 180 - 113 = 67^\circ \quad (\text{ABCG parallelogram})$$

$$\angle FCG = 180 - 67 - 76 = 37^\circ$$

$$\angle CGF = 180 - 115 - 37 = 28^\circ$$

Ans: a)  $76^\circ$

b)  $28^\circ$

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10. a)

$$\text{Distance from home to library} = 15 \times \frac{1}{2} = 7.5 \text{ km}$$

b)

$$\frac{3}{5} \rightarrow 7.5 \text{ km}$$

$$\frac{1}{5} \rightarrow 7.5 \div 3 \rightarrow 2.5$$

$$\frac{2}{5} \rightarrow 2.5 \times 2 \rightarrow 5 \text{ km}$$

$$\text{Total distance} = 7.5 + 5 = 12.5 \text{ km}$$

$$\text{Total time} = 30 \text{ min} + 45 \text{ min} = 1 \text{ h } 15 \text{ min} = 1.25 \text{ h}$$

$$\text{Average speed} = 12.5 \div 1.25 = 10 \text{ km/h}$$

Ans: a) 7.5 km  
b) 10 km/h

11. a)

$$\angle FGB = 180 - 31 \times 2 = 118^\circ$$

(ABGF rhombus)

$$\angle BGD = 180 - 40 - 140^\circ$$

(BCDG rhombus)

$$\angle FGD = 360 - 118 - 140 = 102^\circ$$

b)

$$\angle GDF = \frac{1}{2} \times (180 - 102) = 39^\circ$$

(DFG isosceles)

$$\angle DFE = \angle GDF = 39^\circ$$

(alternate angles)

Ans: a)  $102^\circ$   
b)  $39^\circ$

12. a)

$$\text{Fraction of amount of pasta sold on Wednesday} = \frac{3}{2} \times \frac{1}{4} = \frac{3}{8}$$

b)

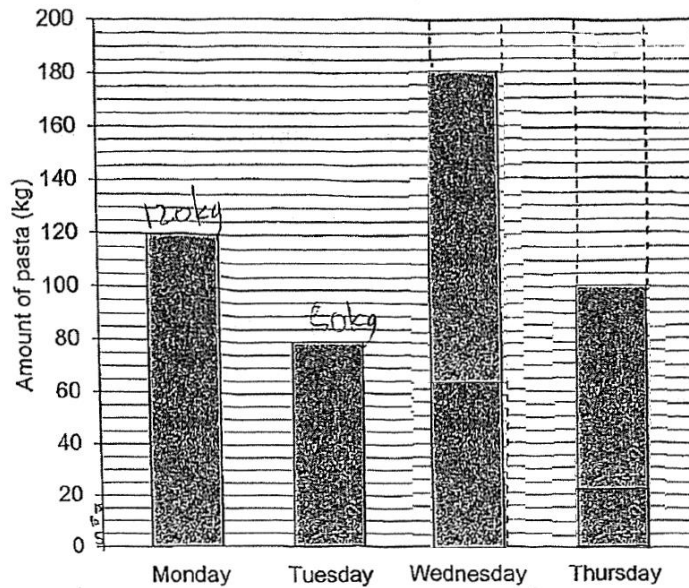
$$\text{Fraction of pasta sold on Tuesday and Thursday} = 1 - \frac{3}{8} - \frac{1}{4} = \frac{3}{8}$$

$$\frac{1}{4} \rightarrow \frac{2}{8} \rightarrow 120$$

$$\frac{3}{8} \rightarrow 120 \div 2 \times 3 \rightarrow 180 \text{ kg for Wednesday}$$

$$\text{Tuesday} + \text{Thursday} \rightarrow \frac{3}{8} = 180 \text{ kg}$$

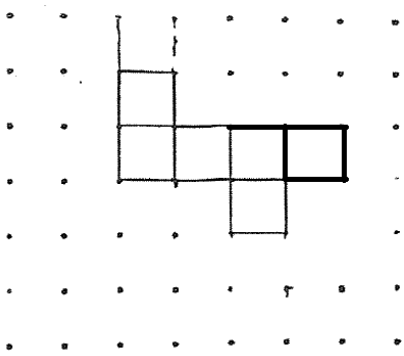
$$\text{Thursday amount} = 180 - 80 = 100 \text{ kg}$$



Ans: a)  $\frac{3}{8}$

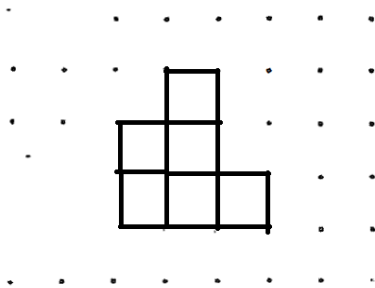
b) Wed 180kg,  
Thur, 100kg

13. a)



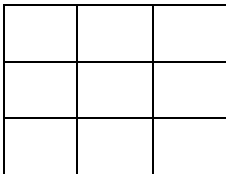
b)

Front view



c)

Number of unpainted faces = 12



Ans: a) see figure  
 b) see figure  
 c) 12

14. a)

$$60\% \rightarrow 144$$

$$10\% \rightarrow 144 \div 6 = 24$$

$$100\% \rightarrow 24 \times 10 = 240 = \text{total sold}$$

$$40\% \rightarrow 24 \times 4 = 96 \text{ apples sold}$$

b)

$$30\% \rightarrow 240$$

$$70\% \rightarrow 240 \div 3 \times 7 = 560 \text{ unsold}$$

$$\text{Apple unsold} = 30/100 \times 560 = 168$$

$$\text{Apples at first} = \text{apples left} + \text{apples sold} = 168 + 96 = 264$$

Ans: a) 240

b) 264

15. Let amount Sam had left =  $u$

	Raju	Sam	Tristan
Total at first	-----(\$435)-----		
At first	$r$	$s$	$t$
Spent	$\frac{4}{5}r$	$\frac{2}{3}s$	$\frac{3}{4}t$
Left	$\frac{1}{5}r$	$\frac{1}{3}s$	$\frac{1}{4}t$
Left	$55+u$	$u$	$10+u$

$$r = (55 + u) \times 5 = 5u + 275$$

$$s = u \times 3 = 3u$$

$$t = (10+u) \times 4 = 4u + 40$$

$$\text{Total at first} = 5u + 275 + 3u + 4u + 40 = 435$$

$$12u = 435 - 275 - 40 = 120$$

$$u = 120 \div 12 = 10$$

$$\text{Amount Tristan had at first} = 4u + 40 = 4 \times 10 + 40 = \$80$$

Ans: \$80

16.  $\frac{1}{3}$  Lion Brand  $\frac{2}{3}$  Dino brand

Ratio of number of Lion Brand to Dino brand = 1 : 2

= 2 sets of 3 Lion brand : 3 sets of 4 Dino brand

Difference in price per such sets =  $3 \times 8.50 - 2 \times 7.25 = 11$

Number of such sets =  $198 \div 11 = 18$

Total spending =  $(2 \times 7.25 + 3 \times 8.50) \times 18 = \$720$

Ans: \$720

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17. a)

Tank A level at first =  $\frac{1}{10} \times 40 = 4$  cm

Level at Tank A =  $4 + 1200 \times t \div (60 \times 10) = 4 + 2t$

Tank B level at first =  $\frac{2}{5} \times 35 = 14$  cm

Level at Tank B =  $14 + 1200 \times t \div (50 \times 20) = 14 + 1.2t$

Level at Tank A = level at Tank B

$$4 + 2t = 14 + 1.2t$$

$$0.8t = 14 - 4 = 10$$

$$t = 12.5 \text{ min}$$

- b)

At  $t = 12.5$  min

Level at Tank A =  $4 + 2 \times 12.5 = 29$  cm

Ans: a) 12.5 min

b) 29 cm

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