

Solutions to Word Problems
ACS Paper 2
P6 Mathematics CA1 2018

Show your working clearly in the space provided for each question and write your answers in the spaces provided.

18. Let total marbles = $5u$

$$\text{Number of marbles Adam received} = \frac{1}{5} \times 5u = u$$

$$\text{Number of marbles Ben received} = u + 18$$

$$\text{Number of marbles Carlos receive} = 5u - u - u - 18 = 3u - 18 = 54$$

$$3u = 54 + 18$$

$$u = 72 \div 3 = 24$$

$$\text{Total number of marbles} = 5u = 5 \times 24 = 120$$

Ans: 120 marbles

19. Price of 3 kg of prawns = $3000 \div 100 \times 1.45 = \43.50

$$\text{Price of one box of scallops} = 75.45 - 43.50 = \$31.95$$

Ans: \$31.95

20. Volume of large tank = $10 \times 10 \times 30 = 3000 \text{ cm}^3$
Volume of 1 small container = $10 \times 8 \times 5 = 400 \text{ cm}^3$
Number of small containers that can be filled = $3000 \div 400$
= 7 remainder 200 cm^3
Largest number of small containers can be filled = 7

Ans: 7

21. Cost of 6 notebooks = cost of 2 pens (cost of pen is 3 times notebook)
Number of pens $\frac{1}{4}$ of his money can buy = $3 + 2 = 5$
Remaining money is $1 - \frac{1}{4} = \frac{3}{4}$
 $\frac{2}{3}$ of remaining money = $\frac{2}{3} \times \frac{3}{4} = \frac{1}{2}$ of his money
 $\frac{1}{4}$ of his money can buy 5 pens
 $\frac{1}{2}$ of his money can buy 5×2 pens = 10 pens
Total pens Roy bought = $10 + 3 = 13$

Ans: 13 pens

22. a)

Ratio of number of muffins to number of cupcakes at first = 2 : 5

$$\text{Number of muffins at first} = \frac{2}{7} \times 112 = 32$$

b)

Ratio of number of muffins to number of cupcakes at end = 1 : 7

$$2 : 5 \rightarrow 4u : 10u$$

Minus 3u each, equal

$$1 : 7 \rightarrow 1u : 7u$$

$$4u + 10u = 112$$

$$u = 112 \div 14 = 8$$

$$\text{Number of muffins and cupcakes sold altogether} = 3u + 3u = 6u = 6 \times 8 = 48$$

Ans: (a) 32

(b) 48

23. a)

$$\angle ADC = 180 - 113 = 67^\circ$$

$$f = \angle BCE = \angle ADC = 67^\circ \quad (\text{as } AD \parallel BC)$$

b)

$$\angle ABC = 360 - 113 - 67 - 67 = 113^\circ \quad (\text{total angles in trapezium} = 360)$$

$$g = (113 - 35) \div 2 = 39^\circ$$

Ans: (a) 67°

(b) 39°

24. **Errata : There is an error in question, the change as below**
“Melissa and Nurul had a total of ~~408~~ 106 beads”

a)

Let number of beads Nurul used = $2u$

Number of beads Melissa used = $2u \times 3 = 6u$

Number of beads Nurul had left = $2u + 12$

Number of beads Melissa had left = $(2u + 12) \div 2 = u + 6$

At first, total number of beads = number used + number left

$$= 2u + 6u + (2u + 12) + (u + 6) = 106$$

$$11u = 106 - 12 - 6 = 88$$

$$u = 88 \div 11 = 8$$

Number of beads Nurul used = $2u = 2 \times 8 = 16$

b)

Number of beads Melissa had at first = $6u + (u + 6) = 6 \times 8 + 8 + 6 = 62$

Ans: (a) 16
(b) 62

Section C

For questions 18 to 24, show your working clearly question and write your answers in the spaces provided. The number of marks available is shown in brackets [] at the end of each question or part-question. (25 marks)

18. Adam, Ben and Carlos shared some marbles. Adam received $\frac{1}{5}$ of the marbles. Ben received 18 more marbles than Adam. Carlos received 54 marbles. How many marbles did they have altogether?

- Ans : _____ [3]

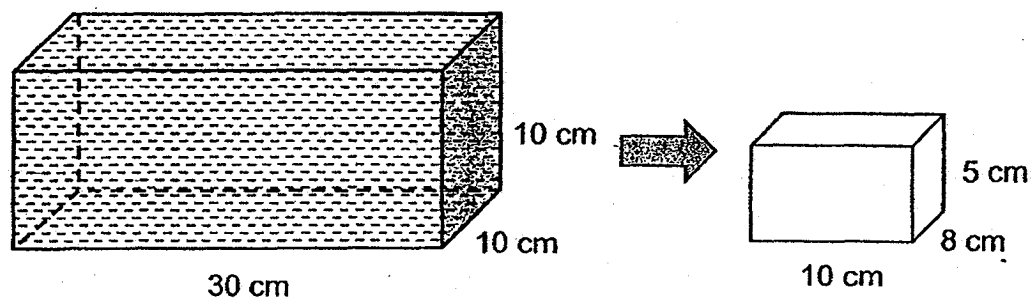
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19. Mr Ong spent \$75.45 on 3 kg of prawns and one box of frozen scallops for his barbecue party. The prawns were sold at \$1.45 for every 100 g. How much did the box of frozen scallops cost?

Ans : _____ [3]

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20. A rectangular tank measuring 30 cm by 10 cm by 10 cm is completely filled with water. The water is then poured into some rectangular containers to the brim without spilling. Each container measures 10 cm by 8 cm by 5 cm. What is the greatest number of containers that can be filled **completely** by water?



Ans : _____ [3]

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21. Roy used $\frac{1}{4}$ of his money on 3 pens and 6 notebooks. The cost of each pen is 3 times the cost of each notebook. He bought some more pens with $\frac{2}{3}$ of his remaining money. How many pens did Roy buy altogether?

Ans : _____ [4]

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22. There was $\frac{2}{5}$ as many muffins as cupcakes in a shop. After selling an equal number of muffins and cupcakes, the ratio of the number of muffins to the number of cupcakes left was 1 : 7. There was a total of 112 muffins and cupcakes in the shop at first.

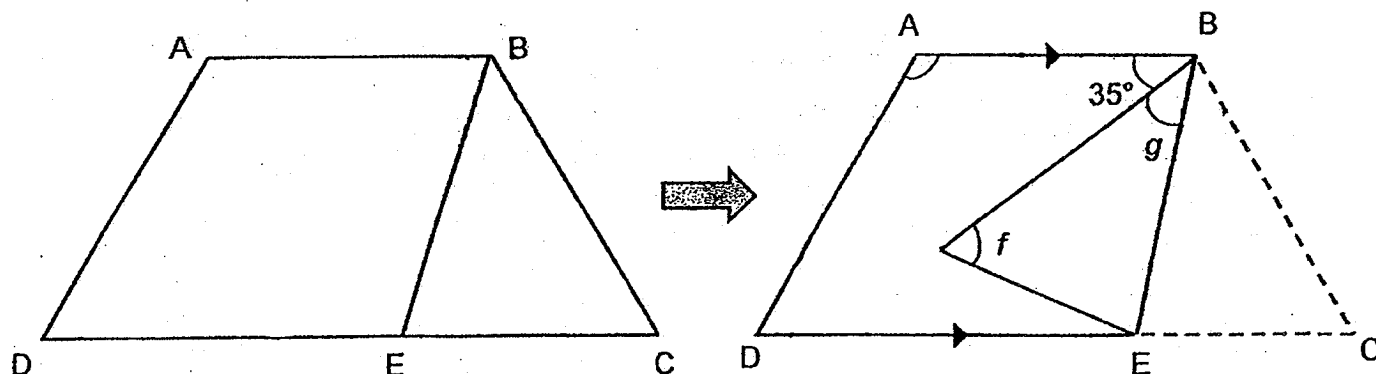
- (a) How many muffins were there at first?
- (b) How many muffins and cupcakes were sold altogether?

Ans : (a) _____ [1]

(b) _____ [3]

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23. Reuben has a piece of paper ABCD that is in the shape of a trapezium with $AD = BC$ and $\angle BAD = 113^\circ$. He folded it along the line BE as shown below.



(a) Find $\angle f$.

(b) Find $\angle g$.

Ans : (a) _____ [2]

(b) _____ [2]

24. Melissa and Nurul had a total of 108 beads. Melissa used 3 times as many beads as Nurul to make some bracelets. The number of beads Nurul had left was 12 more than what she had used. She had twice as many beads left as compared to Melissa.

- (a) How many beads did Nurul use?
- (b) How many beads did Melissa have at first?

Ans : (a) _____ [2]

(b) _____ [2]

End of Paper

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