

Word Problem Worksheet
& Solutions
Maha Bodhi Paper
P6 Mathematics SA1 2018

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. Cost of 5 cups = $5 \times 14 = 70$

Difference in cost between 6 glasses and 9 glasses = $70 - 43 = \$27$

Cost of 3 glasses = $\$27$

Cost of 1 glass = $27 \div 3 = \$9$

Cost of 9 glasses = $9 \times 9 = \$81$

Ans: \$81

7. Area of shaded triangle = $\frac{1}{2} \times 14 \times 7 = 49 \text{ cm}^2$

Area of quarter circle = $\frac{1}{4} \times 3.14 \times 7 \times 7 = 38.47 \text{ cm}^2$

Area of shaded part = $49 + 38.47 = 87.47 \text{ cm}^2$

Ans: 87.47 cm^2

8. $\frac{5}{8}$ of remaining money = \$15 $(1 - \frac{3}{8} = \frac{5}{8})$

Remaining money = $\frac{8}{5} \times 15 = \24

$\frac{4}{5}$ of John's money = \$24 $(1 - \frac{1}{5} = \frac{4}{5})$

$\frac{1}{5}$ of John's money = cost of muffins = $24 \div 4 = \$6$

Ans: \$6

9. Height of original rectangular wooden block = $6 + 2 + 3 = 11$ cm

Volume of original rectangular wooden block = $10 \times 11 \times 14 = 1540 \text{ cm}^3$

Volume of cuboid = $6 \times 6 \times 14 = 504 \text{ cm}^3$

Volume of solid = $1540 - 504 = 1036 \text{ cm}^3$

Ans: 1036 cm^3

10. a)

Amount of money group C collected = $5 \times 2 + 15 \times 5 = \85

b)

Total number of bottles = $14 + 7 + 5 + 9 + 7 + 15 = 57$

Average number of bottles sold by each group = $57 \div 3 = 19$

Ans: (a) \$85
(b) 19

11. Difference in price between pen and pencil = $0.2 + 0.5 = \$0.70$

Let price of pencil = u

Additional cost of 3 pens compared with 3 pencils = $3 \times 0.7 = \$2.10$

Price of 3 pens and 8 pencils = $3u + 2.1 + 8u = 12$

$11u = 12 - 2.1 = 9.9$

$u = 9.9 \div 11 = 0.9$

Cost of each pen = $0.9 + 0.7 = \$1.60$

Ans: \$1.60

12. $\angle e + \angle d + \angle c = 180^\circ$

$$\angle e + \angle a + \angle b = 180^\circ$$

$$\angle e + \angle d + \angle c = \angle e + \angle a + \angle b$$

$$\angle a + \angle b = \angle d + \angle c = 290 \div 2 = 145^\circ$$

$$\angle e + 145 = 180^\circ$$

$$\angle e = 180 - 145 = 35^\circ$$

Ans: 35°

13. Let t = time from 12 00

$$\text{Distance travelled by van in first 2 hours} = 80 \times 2 = 160 \text{ km}$$

$$\text{Distance travelled by van driver} = 80 \times t + 160 = 80t + 160$$

$$\text{Distance travelled by motorist} = 120 \times t = 120t$$

When motorist catch up with van driver, the 2 distances become the same.

$$80t + 160 = 120t$$

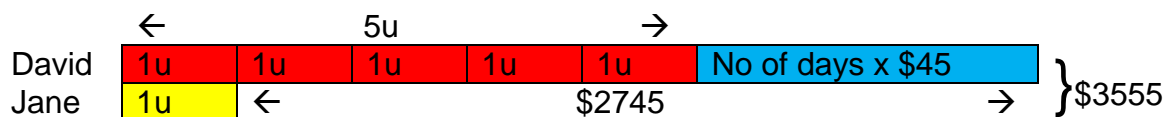
$$40t = 160$$

$$t = 160 \div 40 = 4$$

$$\text{Time motorist catch up with van driver is } 12 \text{ 00} + 4 \text{ 00} = 16 \text{ 00}$$

Ans: 16 00

14. Let u = amount Jane is paid
Excess amount = \$2745



$$2u + 2745 = 3555 \quad (2u = \text{Jane's amount} + \frac{1}{5} \text{ of David's})$$

$$u = 3555 - 2745 = 810 \div 2 = \$405$$

Total amount earned by David and Jane at normal rate = $u + 5u = 6u = 6 \times 405$
= \$2430

Additional amount earned by David at premium rate of +\$45 = $3555 - 2430$
= \$1125

Number of days David worked = $1125 \div 45 = 25$ days

Ans: 25 days

15. Number of red beads = $0.84 \times 200 = 168$ (100% - 16% = 84%)
Let total number of blue beads to make 58% = u

$$\frac{u}{u + 168} = \frac{58}{100}$$

$$100u = 58u + 168 \times 58$$

$$100u - 58u = 42u = 9744$$

$$u = 9744 \div 42 = 232$$

Original number of blue beads = $0.16 \times 200 = 32$

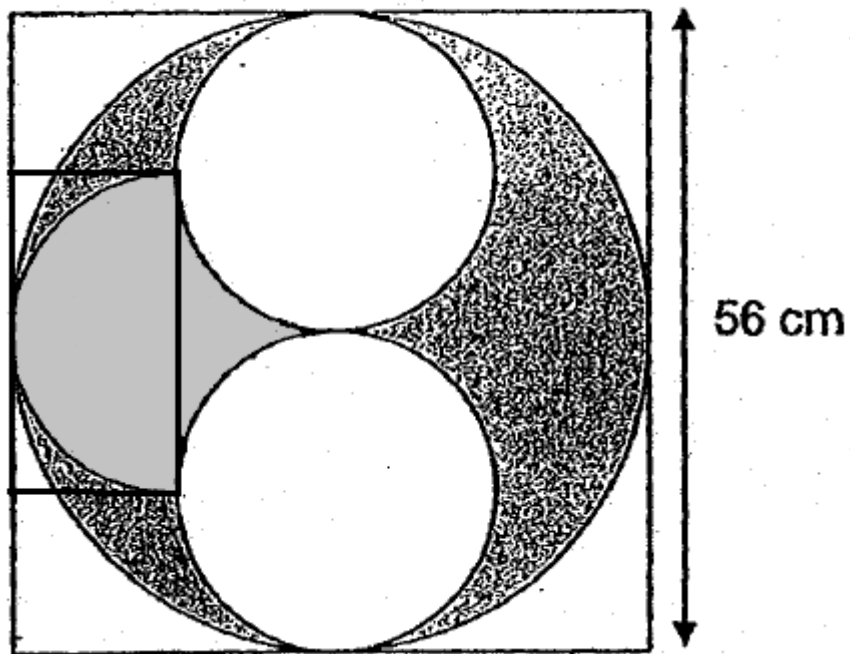
Additional number of blue beads to buy = $232 - 32 = 200$

Ans: 200

16. Area of large circle = $\pi \times 28 \times 28 = 784 \times \frac{22}{7} = 2464 \text{ cm}^2$

Area of small circle = $\pi \times 14 \times 14 = 196 \times \frac{22}{7} = 616 \text{ cm}^2$

Area of half small circle on the left = $196\pi \times \frac{1}{2} = 98 \times \frac{22}{7} = 308 \text{ cm}^2$



Grey area is equal to rectangle shown = $14 \times 14 \times 2 = 392 \text{ cm}^2$

Area of shaded part = $2464 - (616 + 616 + 392) = 840 \text{ cm}^2$

Ans: 840 cm^2

17. Ratio of number of females to number of males $\rightarrow 5 : 6$

Ratio of number of girls to number of women $\rightarrow 2 : 3$

Therefore

Ratio of number of girls to number of women to number of males $\rightarrow 2 : 3 : 6 \rightarrow$
 $14 : 21 : 42$ (multiply by 7)

Ratio of number of girls: women: boys : men $\rightarrow 14 : 21 : \frac{3}{7} \times 42 : \frac{4}{7} \times 42$
 $\rightarrow 14 : 21 : 18 : 24$

a)

Fraction of people in concert hall were children = $\frac{14+18}{14+21+18+24} = \frac{32}{77}$

b)

$14 : 21 : 18 : 24 \rightarrow 14u : 21u : 18u : 24u$

Difference in number between men and women = $24u - 21u = 3u = 66$
 $u = 66 \div 3 = 22$

Total number of people = $14u + 21u + 18u + 24u = 77u = 77 \times 22 = 1694$

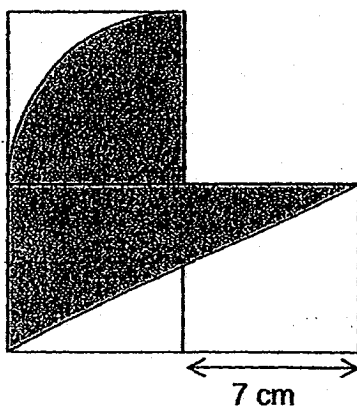
Ans: (a) $\frac{32}{77}$
 (b) 1694

For questions 6 to 17, show your working clearly in the space provided for each question and write your answers in the spaces provided. The number of marks available is shown brackets [] at the end of each question or part-question. (45 marks)
All diagrams are not drawn to scale.

6. A cup cost \$14.
5 such cups and 6 identical glasses cost \$43 more than 9 such glasses.
How much did 9 such glasses cost?

Ans: _____ [3]

7. The figure below is made up of 3 identical squares.
Find the area of the shaded part of the figure. Take $\pi = 3.14$.

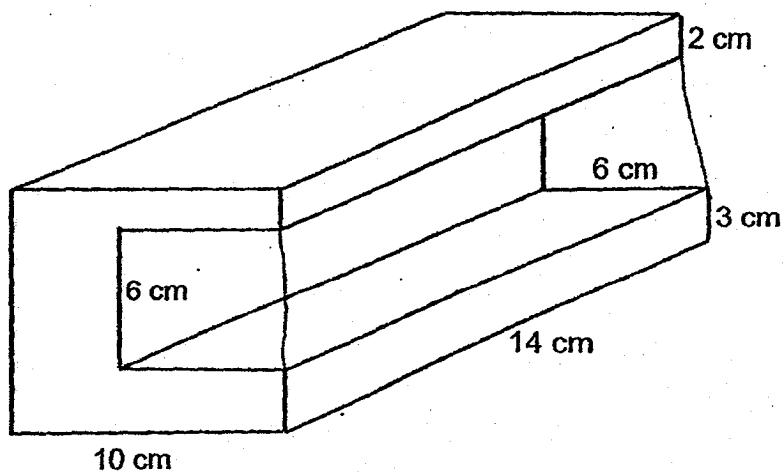


Ans: _____ [3]

8. John spent $\frac{1}{5}$ of his money on some muffins and $\frac{3}{8}$ of the remaining money on some cupcakes. Finally, he was left with \$15. How much did he pay for the muffins

Ans: _____ [3]

9. Jason made a rectangular wooden block into the shape as shown below by removing a cuboid from the original block of wood. What is the volume of this solid?



Ans: _____ [4]

10. The table below shows the number of bottles of folded hearts sold by three groups pupils. They sold a big bottle of folded hearts for \$5 and a small bottle of folded hearts for \$2.

Group	Number of bottles of folded hearts sold	
	Small	Big
A	14	9
B	7	7
C	5	15

- (a) Find the total amount of money collected by group C.
(b) What was the average number of bottles of folded heart sold by the three group:

Ans: (a) _____ [2]

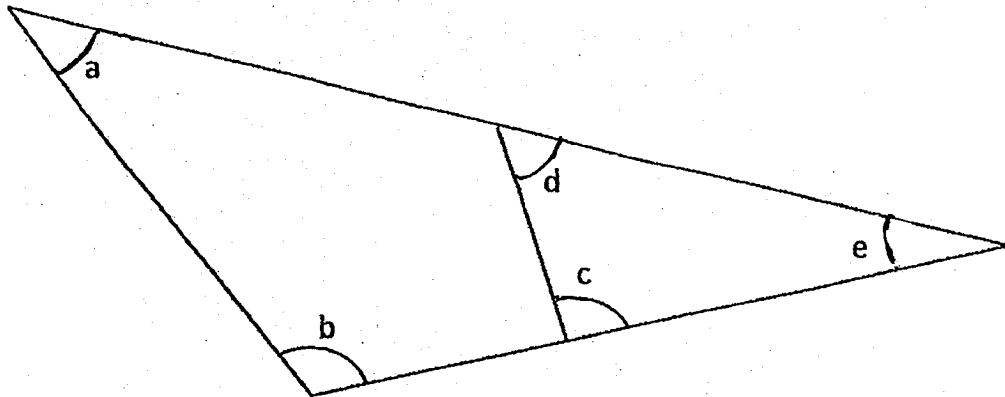
(b) _____ [2]

11. Gina had some money. She spent \$12 on 3 pens and 8 pencils. If she were to buy another pen, she would be short of \$0.20. If she were to buy 1 more pencil, she would have \$0.50 left. How much did each pen cost?

Ans: _____ [4]

12. In the figure below, $\angle a + \angle b + \angle c + \angle d = 290^\circ$.

What is the value of $\angle e$?



Ans: _____ [3]

13. A van driver set off at 10 00 from City A towards City B, travelling at an average speed of 80 km/h.

A motorist set off from City A 2 hours later at an average speed of 120 km/h.

At what time did the motorist catch up with the van driver?

Express your answer using the 24-hour clock time.

Ans: _____ [3]

14. David was paid \$45 more than Jasmine for each day they worked.

David and Jasmine were paid \$3555 altogether.

He worked 5 times as many days as Jasmine and was paid \$2745 more than her.

How many days did David work?

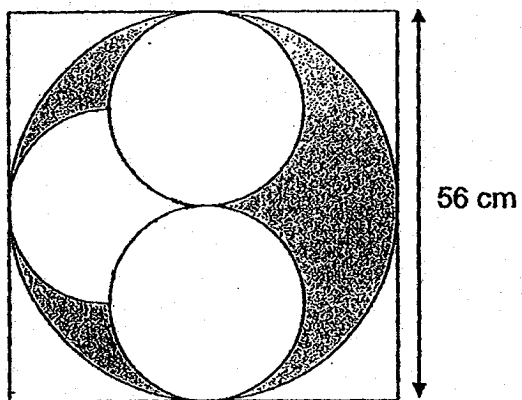
Ans: _____ [4]

15. Carol had 200 red and blue beads. 16% of them were blue. She needed more blue beads. How many more blue beads must she buy to increase the percentage of the blue beads to 58%?

Ans: _____ [4]

16. The figure below is made up of one square, one big circle and 3 identical smaller circles overlapping one another.

Find the area of the shaded part. Take $\pi = \frac{22}{7}$.



Ans: _____ [5]

17. At a concert hall, the ratio of the number of females to the number of males was 5 : 6. The ratio of the number of girls to the number of women was 2 : 3. The ratio of the number of boys to the number of men was 3 : 4.

- (a) What fraction of the people in the concert hall were children?
(b) If there were 66 more men than women, how many people attended the concert altogether?

Ans: (a) _____ [2

(b) _____ [3

/ 5

*Remember to check your work! Every mark counts.
~ End of Paper ~*
