

Word Problem Worksheet
& Solutions
Raffles Paper
P6 Mathematics SA1 2017

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

6. Helen had $\frac{5}{7}$ as many beads as Kelly. Kelly had $\frac{2}{3}$ as many beads as Angela. If Angela had 242 more beads than Helen, how many beads did Kelly have?

Ans: _____

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7. There were 1583 fishes in an aquarium. After $\frac{1}{2}$ of the swordtail fish and 218 of the guppies were sold, the ratio of the number of swordtail fish to the number of guppies left became 4 : 5. How many swordtail fish were sold?

Ans: _____

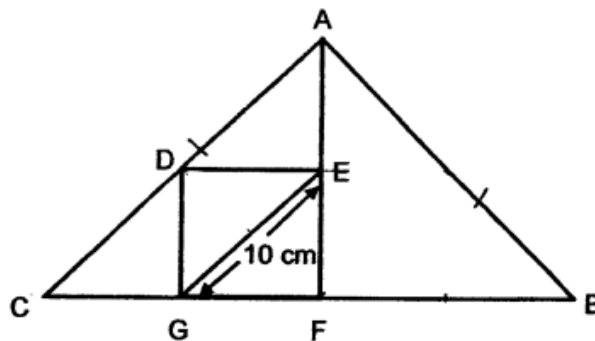
8. Mrs Hong baked 4 times as many vanilla muffins as banana muffins. She gave 115 vanilla muffins to her neighbours and baked another 65 banana muffins. In the end, she had 36 more banana muffins than vanilla muffins. How many muffins did Mrs Hong baked altogether?

Ans: _____

9. In a supermarket, 3 kg of fish cost \$45. 1 kg of prawns cost twice as much as 1 kg of fish. Charlotte bought 3 kg of fish and 4 kg of prawns from the supermarket. How much change did she receive when she paid \$200 for the fish and prawns?

Ans: _____

10. ABC is an isosceles triangle. D and G are mid-point of AC and CF respectively. DEFG is a square and $EG = 10$ cm. Find the area of triangle ABC.



Ans: _____

11. Alice and Bernard were given a sum of money by their parents. Alice received 35% of the money. After Bernard spent 80% of his money, he had \$45.50 left. How much money did Alice receive?

Ans: _____

- 12.** Harry had 2 containers, A and B of different capacities. Both the containers were filled with water to the brim. He used 480 ml of water from container A and it became $\frac{1}{5}$ full. Then he poured $\frac{5}{8}$ of the water from container B into container A. The amount of water in container A increased to 580ml. How much water was in container B at first?

Ans: _____

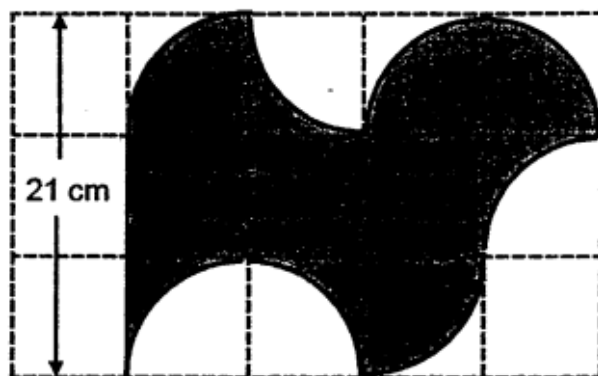
- 13.** At 8.30 am., a bus left Town A for Town B travelling at the speed of 54 km/h. One hour later, a car started from Town B and travelled towards Town A. At 11 am., the car covered $\frac{1}{5}$ of the journey while the bus had to travel another 165 km before it reached the mid-point of the two towns. What was the average speed of the car?

Ans: _____

14. When $\frac{1}{3}$ of a box is filled with flour, its mass is 0.13 kg. When $\frac{3}{4}$ of the box is filled with flour, its mass is 0.23 kg. Find the mass of the box when it is empty.

Ans: _____

15. In the square grid below, the outline of the shaded figure is formed by 8 identical quarter circles and a straight line.



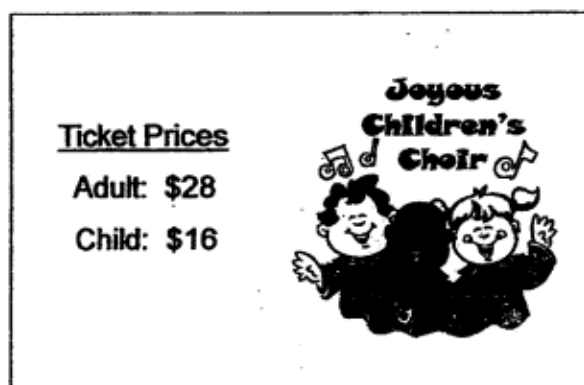
- (a) Find the area of the shaded figure.
(b) Find the perimeter of the shaded figure.

(Take $\pi = \frac{22}{7}$)

Ans: (a) _____

(b) _____

16.



On Saturday, 300 more children than adults attended the performance. On Sunday, the number of children decreased by 40% while the number of adults increased by 20%. The concert hall with a capacity of 2700 seats was only 70% full on Sunday. What was the total amount of money collected from the sales of child tickets on both days?

Ans: _____

- 17.** Mary had some twenty-cent coins and some fifty-cent coins in a money box. The ratio of the number of twenty-cent coins to the number of fifty-cent coins in the money box was 3 : 4 at first. When 40 fifty-cent coins were taken out and replaced by the same value of twenty-cent coins, the ratio of the number of twenty-cent coins to the number of fifty-cent coins became 4 : 1. What was the total amount of money in the money box at first?

Ans: _____

- 18.** Aisha and Ismail had \$751 and \$360 respectively. Aisha saved \$45 per week while Ismail saved \$68 per week.
- (a) How many weeks would it take for both to have the same amount of money?
 - (b) How much money would Aisha have altogether when Ismail saved \$115 more than her?

Ans: (a) _____

(b) _____

Answer Key

Subject: Primary 6 Maths – Word Problem Solutions

Paper: SA1 2017 Raffles

- | | | | |
|-----|------------------------|----|--------|
| 6. | 308 | | |
| 7. | 420 | | |
| 8. | 305 | | |
| 9. | \$35 | | |
| 10. | 200 cm ² | | |
| 11. | \$122.50 | | |
| 12. | 736 ml | | |
| 13. | 80 km/h | | |
| 14. | 0.05 kg | | |
| 15. | a) 343 cm ² | b) | 102 cm |
| 16. | \$32000 | | |
| 17. | \$52 | | |
| 18. | a) 17 weeks | b) | \$1741 |

6. Helen had $\frac{5}{7}$ as many beads as Kelly. Kelly had $\frac{2}{3}$ as many beads as Angela. If Angela had 242 more beads than Helen, how many beads did Kelly have?

Helen										
Kelly										
Angela										

Number of Kelly's beads = $14u = 14 \times 22 = 308$

Ans: 308

7. There were 1583 fishes in an aquarium. After $\frac{1}{2}$ of the swordtail fish and 218 of the guppies were sold, the ratio of the number of swordtail fish to the number of guppies left became 4 : 5. How many swordtail fish were sold?

Before

Swordtail fish					
Guppies					
	218				

After

Swordtail fish					
Guppies					

Let $4u$ = number of swordtail fish at the end

At first

$$8u + 5u + 218 = 1583$$

$$13u = 1583 - 218 = 1365$$

$$u = 1365 \div 13 = 105$$

$$\text{Number of swordtail fish sold} = 4u = 4 \times 105 = 420$$

Ans: 420

8. Mrs Hong baked 4 times as many vanilla muffins as banana muffins. She gave 115 vanilla muffins to her neighbours and baked another 65 banana muffins. In the end, she had 36 more banana muffins than vanilla muffins. How many muffins did Mrs Hong baked altogether?

Banana		+ 65		
Vanilla			- 115	

Let $4u$ = number of vanilla muffins

At the end she had

Number of banana muffins = $u + 65$

Number of vanilla muffins = $4u - 115$

Difference between banana and vanilla muffins

$$u + 65 - (4u - 115) = 36$$

$$3u = 65 + 115 - 36 = 144$$

$$u = 144 \div 3 = 48$$

$$\text{Total muffins she baked} = 5u + 65 = 5 \times 48 + 65 = 305$$

Ans: 305

9. In a supermarket, 3 kg of fish cost \$45. 1 kg of prawns cost twice as much as 1 kg of fish. Charlotte bought 3 kg of fish and 4 kg of prawns from the supermarket. How much change did she receive when she paid \$200 for the fish and prawns?

$$\text{Cost of 1kg of prawns} = 2 \times 45 \div 3 = \$30$$

$$\text{Cost of 3 kg of fish} = \$45$$

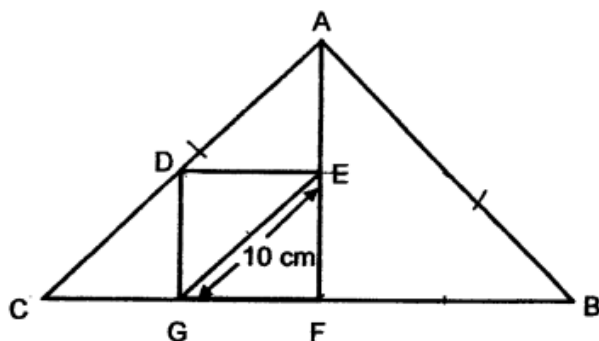
$$\text{Cost of 4 kg of prawns} = 4 \times 30 = \$120$$

$$\text{Total cost} = 45 + 120 = \$165$$

$$\text{Change} = 200 - 165 = \$35$$

Ans: \$35

10. ABC is an isosceles triangle. D and G are mid-point of AC and CF respectively. DEFG is a square and EG = 10 cm. Find the area of triangle ABC.



$$\text{Area of } \triangle EFG = 5 \times 10 \times \frac{1}{2} = 25 \text{ cm}^2$$

$$\text{Area of } \triangle ABC = 8 \text{ small } \triangle = 8 \times 25 = 200 \text{ cm}^2$$

Ans: 200 cm^2

11. Alice and Bernard were given a sum of money by their parents. Alice received 35% of the money. After Bernard spent 80% of his money, he had \$45.50 left. How much money did Alice receive?

Let u = sum of money

$$0.2 \times 0.65u = 45.50$$

$$0.13u = 45.5$$

$$u = 45.5 \div 0.13 = \$350$$

$$\text{Amount Alice receive} = 0.35 \times 350 = \$122.50$$

Ans: \$122.50

- 12.** Harry had 2 containers, A and B of different capacities. Both the containers were filled with water to the brim. He used 480 ml of water from container A and it became $\frac{1}{5}$ full. Then he poured $\frac{5}{8}$ of the water from container B into container A. The amount of water in container A increased to 580ml. How much water was in container B at first?

Let u = container A volume

$$\frac{4}{5} u = 480 \text{ ml}$$

$$u = 480 \div \frac{4}{5} = 600 \text{ ml}$$

$$\text{Water remaining in container A} = 600 - 480 = 120 \text{ ml}$$

$$\text{Increase in container A volume} = 580 - 120 = 460 \text{ ml}$$

Let v = container B volume

$$\frac{5}{8} v = 460$$

$$v = 460 \div \frac{5}{8} = 736 \text{ ml}$$

Container B volume of water at first = 736 ml

Ans: 736 ml

- 13.** At 8.30 am., a bus left Town A for Town B travelling at the speed of 54 km/h. One hour later, a car started from Town B and travelled towards Town A. At 11 am., the car covered $\frac{1}{5}$ of the journey while the bus had to travel another 165 km before it reached the mid-point of the two towns. What was the average speed of the car?

Distance travelled by bus = $2.5 \times 54 = 135$ km

Midpoint distance = $135 + 165 = 300$ km

Total distance from A to B = $300 \times 2 = 600$ km

Distance car travelled = $\frac{1}{5} \times 600 = 120$ km

Time taken = 1.5 hr

Average speed of car = $120 \div 1.5 = 80$ km/h

Ans: 80 km/h

14. When $\frac{1}{3}$ of a box is filled with flour, its mass is 0.13 kg. When $\frac{3}{4}$ of the box is filled with flour, its mass is 0.23 kg. Find the mass of the box when it is empty.

Let u = total mass of 100% filled flour

$$\frac{1}{3}u + \text{mass of box} = 0.13 \text{ kg} \quad (1)$$

$$\frac{3}{4}u + \text{mass of box} = 0.23 \text{ kg} \quad (2)$$

$$\frac{3}{4}u - \frac{1}{3}u = 0.23 - 0.13 \quad (2) - (1)$$

$$\frac{9}{12}u - \frac{4}{12}u = 0.1$$

$$\frac{5}{12}u = 0.1$$

$$u = 0.1 \div \frac{5}{12}$$

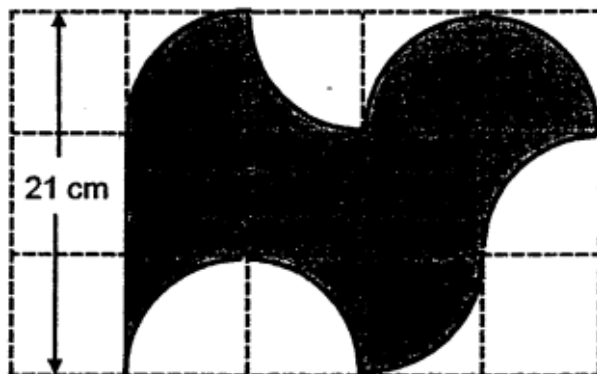
$$u = 0.24$$

$$\frac{1}{3} \times 0.24 + \text{mass of box} = 0.13$$

$$\text{Mass of box} = 0.13 - 0.08 = 0.05 \text{ kg}$$

Ans: 0.05 kg

15. In the square grid below, the outline of the shaded figure is formed by 8 identical quarter circles and a straight line.



- (a) Find the area of the shaded figure.
 (b) Find the perimeter of the shaded figure.

(Take $\pi = \frac{22}{7}$)

- (a) radius = side of square = 7 cm

Number of complete squares = 3

Number of quarter circles = 4

Number of crescent = 4

4 quarter circles match with 4 crescents to form 4 complete squares

Shaded area = 3 + 4 squares = $7 \times 7 \times 7 = 343 \text{ cm}^2$

- (b) Number of quarter circles = 8

Circumference of 8 quarter circles = 2 full circles

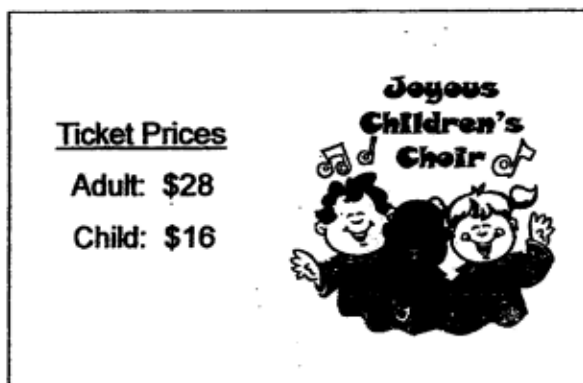
Circumference of 2 circles = $\frac{22}{7} \times 2 \times 7 \times 2 = 88 \text{ cm}$

Perimeter = $88 + 7 + 7 = 102 \text{ cm}$

Ans: (a) 343 cm^2

(b) 102 cm

16.



On Saturday, 300 more children than adults attended the performance. On Sunday, the number of children decreased by 40% while the number of adults increased by 20%. The concert hall with a capacity of 2700 seats was only 70% full on Sunday. What was the total amount of money collected from the sales of child tickets on both days?

$$\text{Audience on Sunday} = 0.7 \times 2700 = 1890$$

Let u = number of children on Saturday

$$\text{Number of children on Saturday} = 0.6u$$

$$\text{Number of adults on Saturday} = u - 300$$

$$\text{Number of adults on Sunday} = 1.2(u - 300)$$

$$\text{Total audience on Sunday} = 0.6u + 1.2u - 360 = 1890$$

$$1.8u = 1890 + 360 = 2250$$

$$u = 2250 \div 1.8 = 1250$$

$$\text{Total children attendance on both days} = u + 0.6u = 1.6 \times 1250 = 2000$$

$$\text{Children ticket sales on both days} = 2000 \times 16 = \$32000$$

Ans: \$32000

17. Mary had some twenty-cent coins and some fifty-cent coins in a money box. The ratio of the number of twenty-cent coins to the number of fifty-cent coins in the money box was 3 : 4 at first. When 40 fifty-cent coins were taken out and replaced by the same value of twenty-cent coins, the ratio of the number of twenty-cent coins to the number of fifty-cent coins became 4 : 1. What was the total amount of money in the money box at first?

At first

Ratio of number of twenty-cent coins vs number of fifty-cent coins = 3 : 4 $\rightarrow$ 3u : 4u

Total value in cents $3 \times 20u + 4 \times 50u = 260u$

After minusing 40 fifty-cent coins and adding 100 twenty-cent coins

Ratio of number of twenty-cent coins vs number of fifty-cent coins = 4 : 1 $\rightarrow$ 8u : 2u

Total value in cents $8 \times 20u + 2 \times 50u = 260u$

$$8u - 3u = 100$$

$$5u = 100$$

$$u = 20$$

Total money at first in cents = $260u = 260 \times 20 = 5200$ cents = \$52

Ans: \$52

- 18.** Aisha and Ismail had \$751 and \$360 respectively. Aisha saved \$45 per week while Ismail saved \$68 per week.
- (a) How many weeks would it take for both to have the same amount of money?
- (b) How much money would Aisha have altogether when Ismail saved \$115 more than her?
- (a) Difference in initial value = $751 - 360 = \$391$
 Difference in weekly savings = $68 - 45 = \$23$
 Number of weeks to have same amount = $391 \div 23 = 17$ weeks
- (b) Total Aisha had after 17 weeks = $751 + 17 \times 45 = \$1516$
 Number of more weeks for Ismail to have \$115 more = $115 \div 23 = 5$ weeks
 Total Aisha had after 22 weeks = $1516 + 5 \times 45 = \$1741$

Ans: (a) 17 weeks

(b) \$1741
