Word Problem Worksheet

& Solutions

Raffles Paper

P6 Mathematics SA1 2017

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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: _____

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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: _____

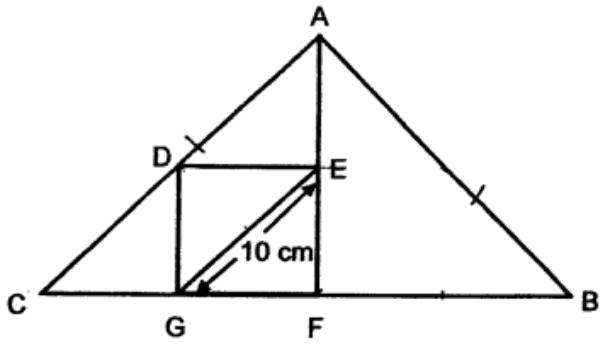
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9. In a supermarket, 3 kg of fish cost $45. 1 kg of prawns cost twice as much as 1 kg of fish. Charlotte bought 3 kg of fish and 4 kg of prawns from the supermarket. How much change did she receive when she paid $200 for the fish and prawns?

Ans: _____

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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: _____

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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: _____

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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: _____

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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: _____

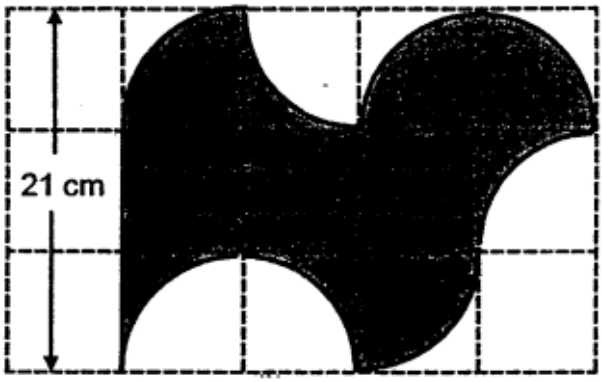
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14. When $\frac{1}{3}$ of a box is filled with flour, its mass is 0.13 kg. When $\frac{3}{4}$ of the box is filled with flour, its mass is 0.23 kg. Find the mass of the box when it is empty.

Ans: _____

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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) _____

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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: _____

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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: _____

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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) _____

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Answer Key

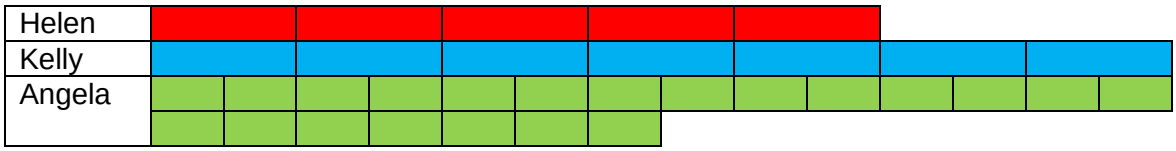
Subject: Primary 6 Maths – Word Problem Solutions
Paper: SA1 2017 Raffles

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

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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?



Let number of Angela's beads = 21u
Number of Helen's beads = 10u

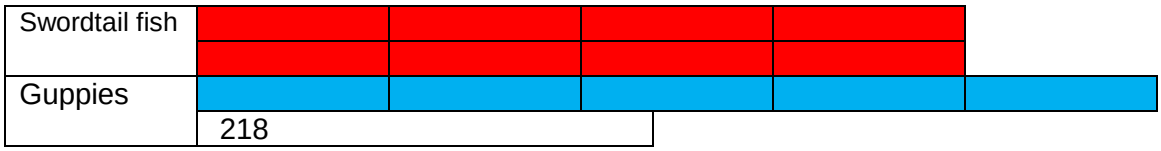
Angela – Helen's beads = 21u – 10u = 11u = 242
u = 242 ÷ 11 = 22
Number of Kelly's beads = 14u = 14 x 22 = 308

Ans: 308

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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?

Before



After



Let 4u = number of swordtail fish at the end

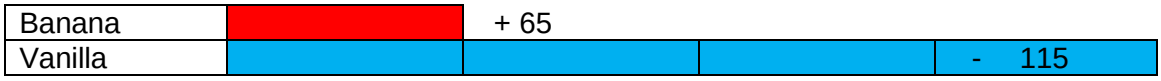
At first
8u + 5u + 218 = 1583
13u = 1583 – 218 = 1365
u = 1365 ÷ 13 = 105

Number of swordtail fish sold = 4u = 4 x 105 = 420

Ans: 420

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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?



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 ÷ 3 = 48

Total muffins she baked = 5u + 65 = 5 x 48 + 65 = 305

Ans: 305

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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?

Cost of 1kg of prawns = 2 x 45 ÷ 3 = $30

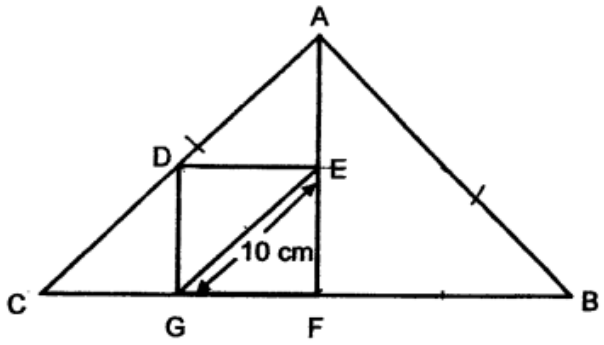
Cost of 3 kg of fish = $45
Cost of 4 kg of prawns = 4 x 30 = $120
Total cost = 45 + 120 = $165

Change = 200 – 165 = $35

Ans: $35

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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.



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

Area of $\triangle$ABC = 8 small $\triangle$ = 8 x 25 = 200 cm^2

Ans: 200 cm^2

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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 x 0.65u = 45.50
0.13u = 45.5
u = 45.5 ÷ 0.13 = $350

Amount Alice receive = 0.35 x 350 = $122.50

Ans: $122.50

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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 mℓ

u = 480 ÷ $\frac{4}{5}$ = 600 mℓ

Water remaining in container A = 600 – 480 = 120 mℓ

Increase in container A volume = 580 – 120 = 460 mℓ

Let v = container B volume

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

v = 460 ÷ $\frac{5}{8}$ = 736 mℓ

Container B volume of water at first = 736 mℓ

Ans: 736 mℓ

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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 x 54 = 135 km
Midpoint distance = 135 + 165 = 300 km
Total distance from A to B = 300 x 2 = 600 km

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

Time taken = 1.5 hr
Average speed of car = 120 ÷ 1.5 = 80 km/h

Ans: 80 km/h

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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 + mass of box = 0.13 kg (1)

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

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

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

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

u = 0.1 ÷ $\frac{5}{12}$

u = 0.24

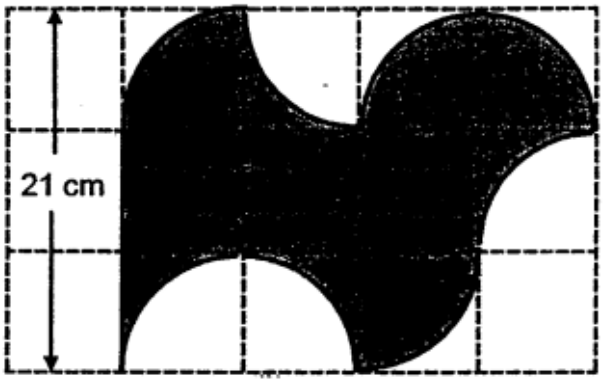
$\frac{1}{3}$ x 0.24 + mass of box = 0.13

Mass of box = 0.13 – 0.08 = 0.05 kg

Ans: 0.05 kg

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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 x 7 x 7 = 343 cm^2

(b) Number of quarter circles = 8

Circumference of 8 quarter circles = 2 full circles

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

Perimeter = 88 + 7 + 7 = 102 cm

Ans: (a) 343 cm^2

(b) 102 cm

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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?

Audience on Sunday = 0.7 x 2700 = 1890
Let u = number of children on Saturday
Number of children on Saturday = 0.6u

Number of adults on Saturday = u – 300
Number of adults on Sunday = 1.2 (u – 300)

Total audience on Sunday = 0.6u + 1.2u – 360 = 1890
1.8u = 1890 + 360 = 2250
u = 2250 ÷ 1.8 = 1250

Total children attendance on both days = u + 0.6u = 1.6 x 1250 = 2000
Children ticket sales on both days = 2000 x 16 = $32000

Ans: $32000

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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 → 3u : 4u
Total value in cents 3x20u + 4x50u = 260u

After minusing 40 fifty-cent coins and adding 100 twenty-cents coins
Ratio of number of twenty-cent coins vs number of fifty-cent coins = 4 : 1 → 8u : 2u
Total value in cents 8x20u + 2x50u = 260u

8u – 3u = 100
5u = 100
u = 20

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

Ans: $52

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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 is initial value = 751 – 360 = $391
Difference in weekly savings = 68 – 45 = $23
Number of weeks to have same amount = 391 ÷ 23 = 17 weeks

(b) Total Aisha had after 17 weeks = 751 + 17 x 45 = $1516
Number of more weeks for Ismail to have $115 more = 115 ÷ 23 = 5 weeks

Total Aisha had after 22 weeks = 1516 + 5 x 45 = $1741

Ans: (a) 17 weeks

(b) $1741

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