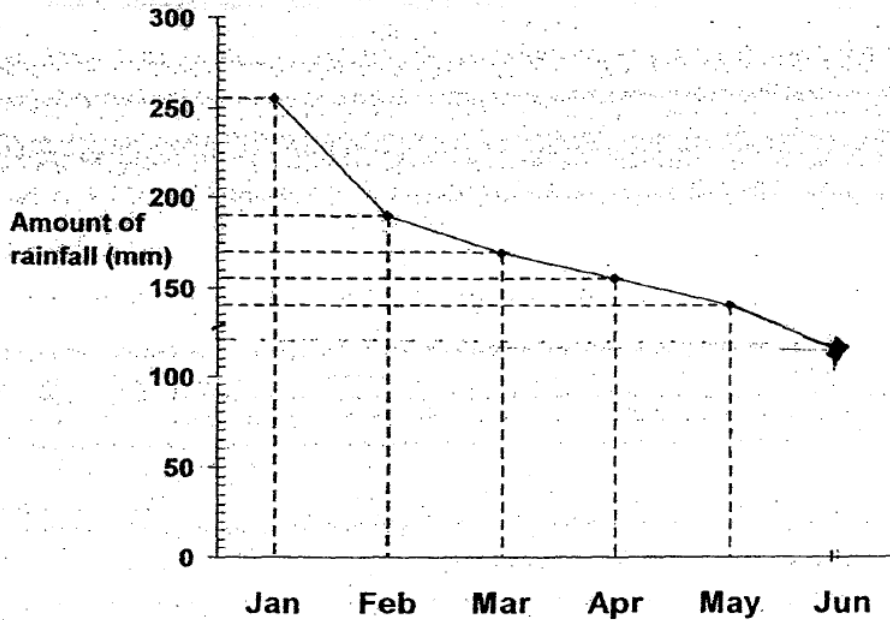# Word Problem Worksheet

P6 Mathematics SA2 2015

References:
P6 2015 Math SA2 papers of NPS, RGPS

Show your workings clearly in the space below it and write your answer in the space provided. Give your answers in the units stated.

1.   The line graph below shows the amount of rain collected in a town from January to June.

(a)   How many percent more rain was collected in January than in March?
(b)   The ratio of the amount of rain collected in May to the amount of rain collected in June was 7 : 6. How much rain was collected in June? Complete the graph above to show the amount of rain collected in June.

Ans: (a) _____
Ans: (b) _____

2. Donna had some candies. She kept half of the number of candies but add 3 candies. She gave the remaining candies to Jane. Jane ate $\frac{1}{3}$ of the candies but add 4 candies. Then Jane gave the remaining candies to Kate. Kate ate $\frac{1}{4}$ of the candies and had 42 candies left. How many candies did Donnal have at first?

Ans: _____

3. On Monday, there were 280 fewer chairs in Hall A than in Hall B. On Tuesday, 0.25 of the chairs from Hall B were moved to Hall A. On Wednesday, 0.2 of the chairs in Hall A were moved back to Hall B. On Thursday, half of the chairs in Hall B were moved back again to Hall A. In the end, there were 520 more chairs in Hall A than Hall B. How many chairs were there in Hall B at first?

Ans: _____

4. The pie chart shows the number of marbles in a box.
    $\frac{1}{2}$ of the marbles are green and red. The number of black marbles is $\frac{2}{7}$ the number of white marbles. Express the number of red marbles as a fraction of the total number of marbles in the box. Leave your answer in the simplest form.

Green
45

Red

Black
12
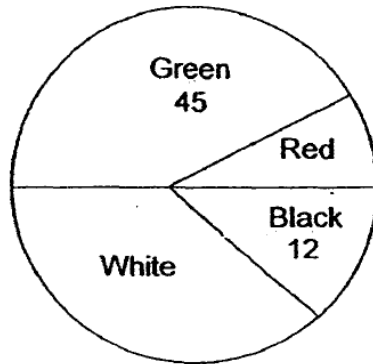
White

Ans: _____

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5. Figure 1 below is formed by a rectangular box measuring 38 cm by 15 cm and 2 identical white balls with diameters 7 cm. The two identical white balls are fixed to the box at a point. Ball A, which is the same size as the 2 identical white balls, rolls anti-clockwise along the sides of Figure 1 as shown in Figure 2. Find the distance that Ball A has rolled along Figure 1 when it returns back to its original position. (Take π = $\frac{22}{7}$)
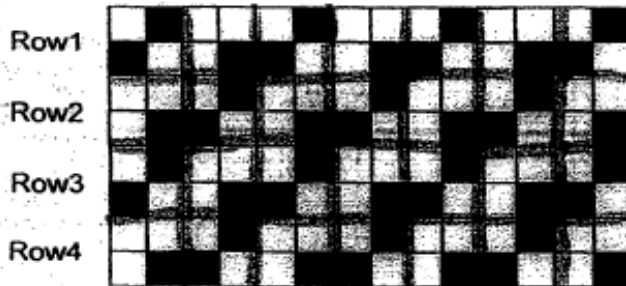

-Ball A

15 cm

38 cm

Figure 1   Figure 2
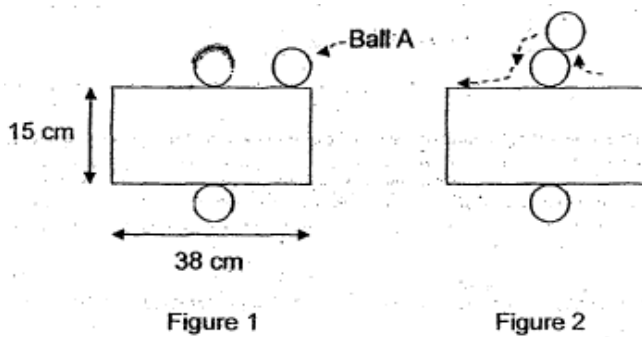
Ans: _____

6. Mr. Yong uses two different square tiles. Tile A and Tile B, to tile the floor of his room. Both tiles are made up of 4 small squares.

Tile A   Tile B

He lays the tiles alternately as shown in the diagram below. The first four rows of the tiled floor are shown below.
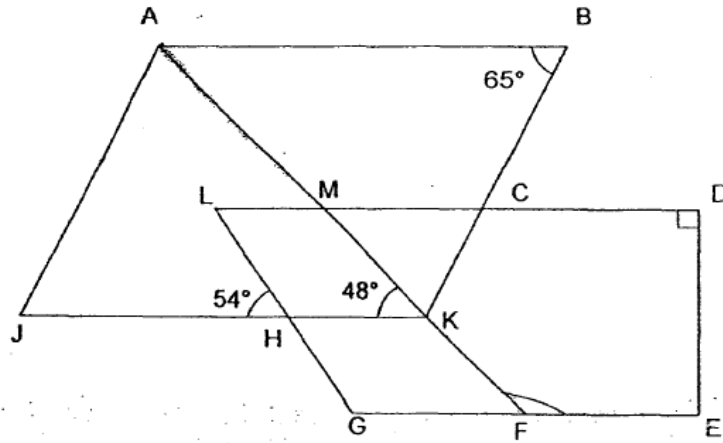

Row1
Row2
Row3
Row4

(a) Which tile does he use for the first tile in Row 10, Tile A or Tile B?
(b) He uses 105 tiles in all. How many black squares are there on his floor?
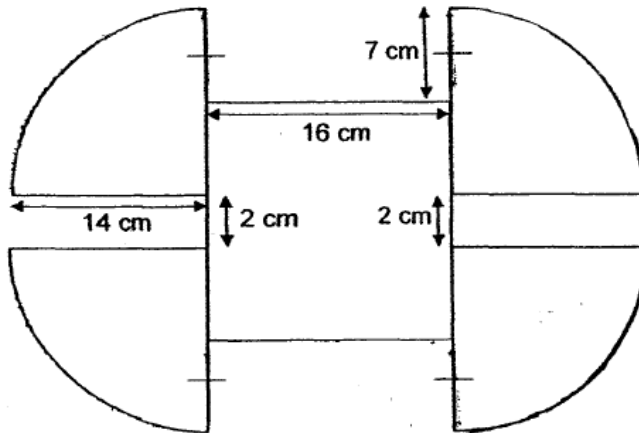
Ans: (a) _____

Ans: (b) _____

7. In the diagram below, ABKJ is a parallelogram, LDEG is a trapezium and line AF is a straight line. Given that LD // JK, ∠ABC = 65°. ∠MKH = 48°, ∠LHJ = 54°. Find
    (a)   ∠JAK (b)   ∠KFE

Ans: (a) _____

Ans: (b) _____

8   The figure below is made up of 4 identical quadrants and a square. Find:

a) The perimeter of the figure. b)   The area of the figure. (Take π as $\frac{22}{7}$)

Ans: (a) _____

Ans: (b) _____

9. Ying and Jones had some money each. The amount of money that Ying had was $\frac{1}{4}$ the amount of money Jones had. They wanted to buy a watch each but Ying was short of $26.60 and Jones was short of $15.20. How much was the watch?

Ans: _____

10. Irfan bought some tarts and pies for $17.60. Each tart cost $0.80 and each pie cost $1.20. Given that 80% of what she bought were tarts, how many more tarts than pies did he buy?

Ans: _____

11. An express train left Town P for Town Q. At the same time, a normal train left Town Q for Town P. The average speed of the express train was 90 km/h more than that of the normal train. The express train and normal train took 4 hours and 10 hours to reach their destinations respectively. Find the average speed of the express train.
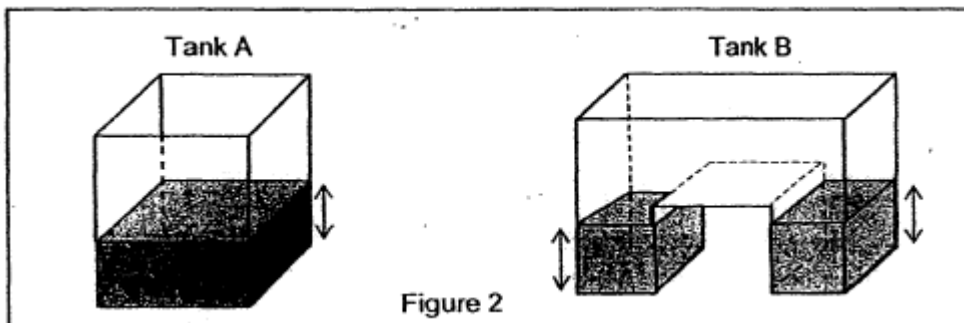
Ans: _____

12. In Figure 1, Tank A is completely filled with water and Tank B is empty. Water is poured from Tank A into Tank B without spilling.

Tank A

50 cm

20 cm

25 cm   Figure 1

Tank B

70 cm

60 cm

25 cm

15 cm   15 cm
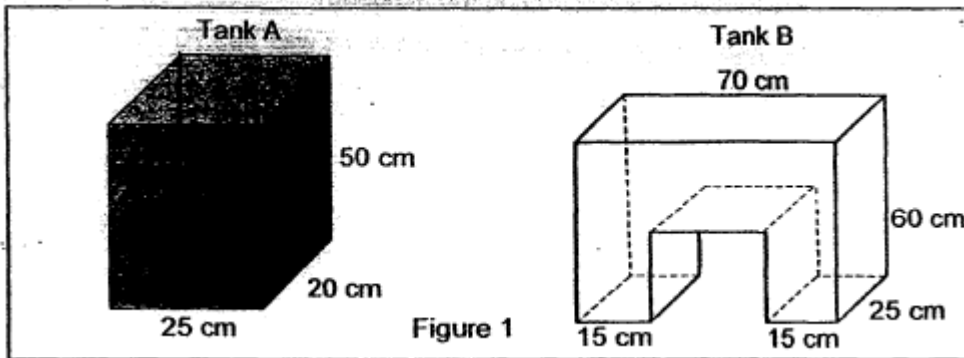
The heights of the water level in the two tanks are now equal as shown in Figure 2.

Tank A

Tank B

Figure 2

What is the height of the water level in Tank A in Figure 2?

Ans: _____

13. Steve, Mark and Ryan took their father out for a meal. Steve had $40 more than Mark. If Steve paid for the meal, the amount of money that Steve, Mark and Ryan left will be in the ratio 3 : 8 : 9 respectively. If Ryan paid for the meal, the amount of money Steve, Mark and Ryan left would be in the ration 5 : 4 : 1 respectively. If Mark paid for the meal, the amount of money Steve, Mark and Ryan left would be in the ratio 10 : 1 : 9 respectively. How much did the meal cost?

Ans: _____

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14. Maria, Nelly and Olivia bought a present for their mother. The ratio of the amount paid by Maria to the total amount paid by Nelly and Olivia was 1 : 4. The amount paid by Nelly to the total amount paid by Maria and Olivia was 3 : 5. If Olivia paid $90 more than Nelly, how much is the cost of the present?

Ans: _____

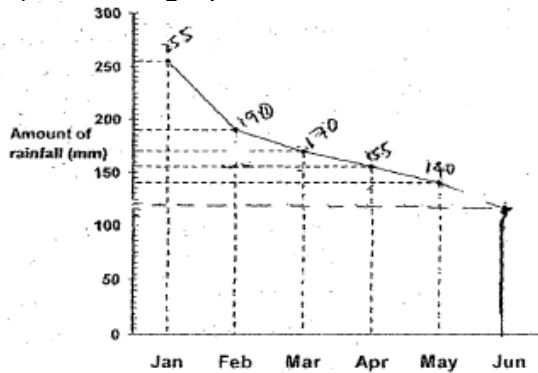**Answer Key**

1. a) 50% -> January -> 255, March -> 170, 255 – 170 = 85, 85 ÷ 170 = 50%
   b) 120 see graph

2. 186 -> 42 ÷ 3 = 14, 14 x 4 = 56, 56 + 4 = 60, 60 ÷ 2 x 3 = 90, 90 + 3 = 93,
   93 x 2 = 186

3.

Monday

| A1 | $\leftarrow$ --------- 280 ---------------- $\rightarrow$ |

| B1 |

Tuesday

| A2 | $\leftarrow$+0.25xB1$\rightarrow$ |

| B2 | 0.75 x B1 |

Wednesday

| A3 | 0.8 x A2 |

| B3 | $\leftarrow$--+0.2 x A2----$\rightarrow$ |

Thursday

| A4 | $\leftarrow$----------+0.5 x B3-----------$\rightarrow$ |

| B4 | 0.5 x B3 |

HallA_Thursday - HallB_Thursday = HallA_Wednesday = 0.8x (HallA_Monday +0.25 x
HallB_Monday)= 520
0.8xHallA_Monday +0.2 x HallB_Monday = 520
0.8xHallA_Monday + 0.2 (280+ HallA_Monday) = 520
HallA_Monday = 464

4. $\dfrac{1}{12}$ ->Total->(12 ÷2)x(7+2)x2=108, Half->(12 ÷2)x(7+2)=54, Red->54-45=9, $\dfrac{9}{108}$

 =$\dfrac{1}{12}$

5. 15+15+38+38-7-7+($\dfrac{22}{7}$ x7)- 3.5 - 3.5 - 3.5 - 3.5=30+76-14+22-14 =100cm

6. a) Tile B -> (odd) Row 1 -> A(11), (even) Row 2 -> B(10, (Odd)Row 10 -> B.
 b) 158 -> 105 ÷ 7 = 15, 11 x 8 = 88, 10 x 7 = 70, 70 + 88 = 158

7. a) 67°->180-65-48=67° b) 132° -> ∠KFE = 180-48 =132°

8. a) 208cm>perimeter->7x4 = 28, (14x4)+16+16+2+2=92, 22÷7x28=88,
 total->28+92+88= 208

 b) 872cm^2-> circle->$\dfrac{22}{7}$ x14x14=616, square->16x16=256, total-> 616 +256= 872

9. $30.40 -> $26.60 - $15.20 = $11.40, $11.40 ÷ 3 = $3.80, $3.80 + $26.60 = $30.40

10. 12 -> 8 x 80 cents = $6.40, 2 x $1.20 = $2.40, $6.40 + $2.40 = $8.80, $17.60 ÷ $8.80 = 2, total number -> 2 x 10, 80%-20%=60%, 0.6 x 20 =12

11. 150 km/hr -> Express Train: Normal Train, Time -> 4: 10 -> 2:5, Distance 1:1, Speed ->5:2, 5u:2u, 3u -> 90km, 5u -> 90 ÷ 3 x 5=150km/hr

12. 20cm-> 25 x20x50=25,000. Total base area-> (25 x 20)+(30x25)=1250 Height -> 25,000÷1250 = 20

13. $140 -> Ryan paid->5:4:1-> 10:8:2, Mark paid->10:1:9, Ryan-Mark->2u, Meal-> 7u
 2u -> 40, 1u -> $40 ÷ 2 = $20, 7U -> $20 x 7 = $140

14.

← -----Maria--- →	← ------------------------------ Nelly + Olivia -- →
$\dfrac{1}{5}$	$\dfrac{4}{5}$

← --------------- Nelly--------------- →	← -------------------- Maria + Olivia -------------------------------- →
$\dfrac{3}{8}$	$\dfrac{5}{8}$

Maria + Olivia = $\dfrac{5}{8}$ of cost

Olivia = Nelly + $90

Maria + Nelly + 90 = $\dfrac{5}{8}$ of cost

$\dfrac{1}{5}$ of cost +$\dfrac{3}{8}$ of cost + 90 = $\dfrac{5}{8}$ of cost

90 = = $\dfrac{5}{8}$ -$\dfrac{1}{5}$ -$\dfrac{3}{8}$ of cost

90 = $\dfrac{25}{40}$ -$\dfrac{8}{40}$ -$\dfrac{15}{40}$ = $\dfrac{2}{40}$ = $\dfrac{1}{20}$ of cost

Total cost = 90 x 20 = 1800

References:
 (Q1,2,3,5,6,9,10,11,13) = NPS (Q11,16,17,13,14,7,9,10,18)
(Q4,7,8,12,14) = RGPS (Q6,8,12,16,11)