

Math Teacher:



**RAFFLES GIRLS' PRIMARY SCHOOL  
SEMESTRAL ASSESSMENT 1  
MATHEMATICS (PAPER 1)  
PRIMARY 6**

Name: \_\_\_\_\_ (     )

Form Class: P6 \_\_\_\_\_

Date: 10 May 2011

Duration: 50 min

<b>Your Score (Out of 100 marks)</b>			
<b>Your Score (Out of 40 marks)</b>			
		<b>Banded Math Class</b>	<b>Level</b>
<b>PAPER 1 (40%)</b>	<b>Highest Score</b>		
	<b>Average Score</b>		
<b>TOTAL (100%)</b>	<b>Highest</b>		
	<b>Average Score</b>		
<b>Parent's Signature</b>			

**INSTRUCTIONS TO CANDIDATES**

1. Do not turn over this page until you are told to do so.
2. Follow all instructions carefully.
3. Answer **ALL** questions and show all working clearly.
4. **NO** calculator is allowed for this paper.

## **SECTION A (20 marks)**

Questions 1 to 10 carry 1 mark each. Question 11 to 15 carry 2 marks each.  
For each question, four options are given. One of them is the correct answer.  
Make your choice (1, 2, 3 or 4). Shade your answer (1, 2, 3 or 4) on the OAS  
provided. All diagrams are not drawn to scale.  
No calculators may be used for this paper.

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1. What is the missing value in the box?

$$423 \times 1\,000 = \boxed{\phantom{000}} \times 10$$

- (1) 423  
(2) 4 230  
(3) 42 300  
(4) 423 000
2. Which of the following is closest to 1?
- (1)  $\frac{1}{2}$   
(2)  $\frac{2}{3}$   
(3)  $\frac{3}{4}$   
(4)  $\frac{4}{5}$
3. Which of the following is the same as 2010 g?
- (1) 2 kg 1 g  
(2) 2 kg 10 g  
(3) 20kg 1 g  
(4) 20 kg 10 g

4. Find the value of  $(3y + 1) \div 4$ , when  $y = 5$

- (1) 9
- (2) 8
- (3) 5
- (4) 4

5. This year ratio of Rachel's age to Samy's age is 7 : 6.

Rachel is 4 years older than Samy.

What is Samy's age this year?

- (1) 10 years old
- (2) 11 years old
- (3) 24 years old
- (4) 28 years old

6. How many fifths are there in  $2\frac{3}{5}$  ?

- (1) 13
- (2) 11
- (3) 3
- (4) 6

7. The sum of  $\frac{1}{2}$  and  $\frac{2}{5}$  is the same as \_\_\_\_\_.

- (1) 0.009
- (2) 0.090
- (3) 0.900
- (4) 9.000

8. What is the value of  $36 + 24 \div (9 - 3) + 2 \times 5$  ?

- (1) 50
- (2) 51
- (3) 60
- (4) 66

9. Study the table below.

Bala's age (years old)	Mdm Koh's age (years old)
5	34
12	41
21	50

How old will Mdm Koh be when Bala is  $k$  years old?

- (1)  $29k$  years old
  - (2)  $30k$  years old
  - (3)  $(29 - k)$  years old
  - (4)  $(29 + k)$  years old
10. Sally has 100 marbles and her brother has 300 marbles.  
Express Sally's marbles as a percentage of the total number of marbles they have altogether.
- (1) 25%
  - (2)  $33\frac{1}{3}\%$
  - (3) 300%
  - (4) 400%

11. Mr Tan has an equal number of pens and pencils.  
He puts the pens in bundles of 8 and the pencils in bundles of 12.  
There are 15 bundles altogether. How many pens are there?

- (1) 24
- (2) 48
- (3) 72
- (4) 96

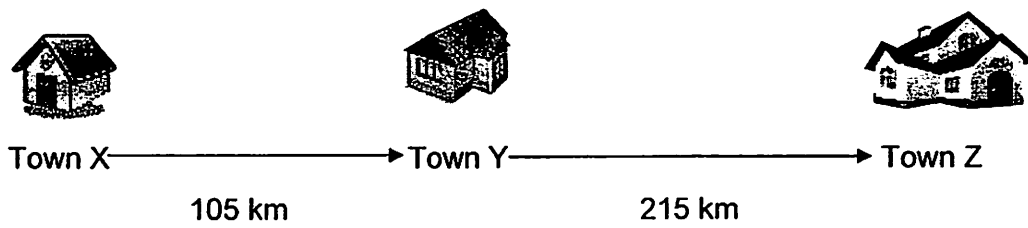
12. 3 ones, 4 tenths and 7 thousandths is \_\_\_\_\_.

- (1) 3.470
- (2) 3.047
- (3) 3.407
- (4) 3.740

13. Which one of the following is equal to 0.25%?

- (1)  $\frac{1}{25}$
- (2)  $\frac{1}{4}$
- (3)  $\frac{1}{400}$
- (4) 25

14. Mr Goh travelled from Town X to Town Z at an average speed of 80 km/h. Given that he drove from Town X to Town Y at an average speed of 70 km/h, find his average speed as he travelled from Town Y to Town Z.



- (1)  $53\frac{3}{4}$  km/h
- (2) 75 km/h
- (3) 86 km/h
- (4) 110 km/h
15. Maria poured out  $\frac{1}{2}$  of the water in a container.
- In the second pouring, she poured out  $\frac{1}{3}$  of the remaining water.
- In the third pouring, she poured out  $\frac{1}{4}$  of the remaining water.
- In the fourth pouring, she poured out  $\frac{1}{5}$  of the remaining water, and so on.
- How many times of pouring will the remaining water be exactly  $\frac{1}{10}$  of the original amount of water in the container?
- (1) 8
- (2) 9
- (3) 10
- (4) 11

**SECTION B (20 marks)**

Questions 16 to 25 carry 1 mark each. Questions 26 to 30 carry 2 marks each. Write your answers in the spaces provided. For questions which require units, give your answers in the units stated. All diagrams are not drawn to scale. Answers in fractions or ratio must be expressed in the simplest form.

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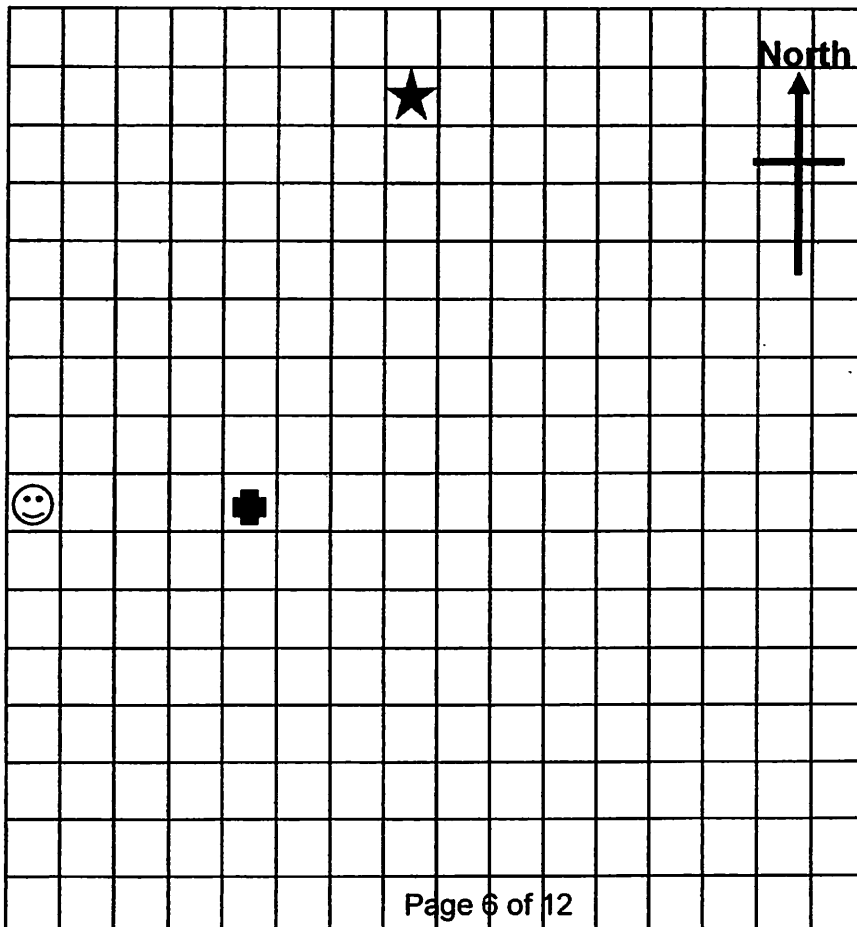
16. Form the largest 4-digit odd number from the digits 2, 5, 8 and 3.

Ans: \_\_\_\_\_

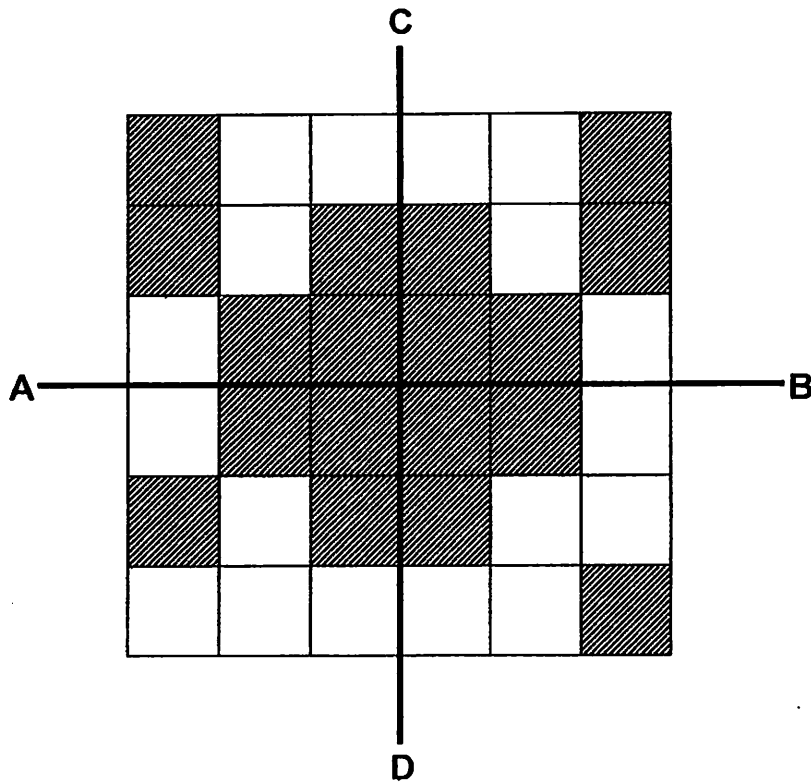
17. The following three sentences describe the location of point X.

- (i) ★ is exactly on the North East of point X.
- (ii) ☺ is exactly on the South West of point X
- (iii) ⊕ is exactly on the South East of point X.

Mark "X" on the grid map below to indicate the location of point X.



18. The figure below are made up of similar squares. Shade two more squares so that the figure is symmetrical along lines AB and CD.



19. Find the value of  $\frac{5}{8} + \frac{5}{6}$ .

Express your answer as a mixed number in its simplest form.

Ans: \_\_\_\_\_

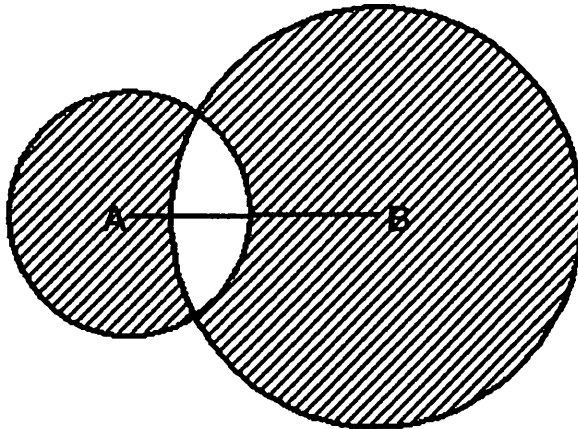
20. Express 0.16 as fraction in its simplest form.

Ans: \_\_\_\_\_

21. A jug contains 200 ml of water. Shuwei pours 0.65 litres of water into the jug. How many litres of water is in the jug now?

Ans: \_\_\_\_\_ l

22. The radius of circle A is 5 cm and the radius of circle B is 6 cm. Find the difference between the shaded area of circle B and circle A. Leave your answer in terms of  $\pi$ .



Ans: \_\_\_\_\_ cm<sup>2</sup>

23. A rod of length  $7p$  cm is cut into 8 equal pieces.  
What is length of each piece?  
Express your answer in terms of  $p$ .

Ans: \_\_\_\_\_ cm

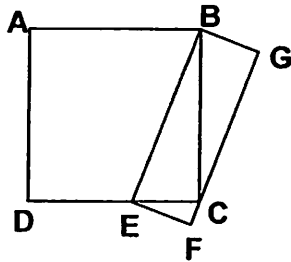
24.  $0.99 \times 99 - 0.99 \times 9 = 0.99 \times \square$   
Fill in the box with the suitable answer.

Ans: \_\_\_\_\_

25. A performance started at 7.45 p.m..  
The performance lasted for 2 hours and 30 minutes  
What time did the performance end?

Ans: \_\_\_\_\_ p.m

26. The figure below is made up of a square ABCD overlapped with a rectangle BEFG. The area of BEFG is  $\frac{1}{3}$  of the area of ABCD. Given that FCG is a straight line and the area of the triangle BEC is  $48 \text{ cm}^2$ , find the area of the square ABCD.

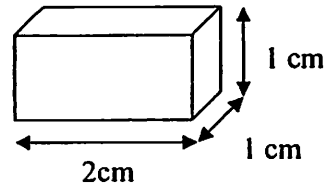
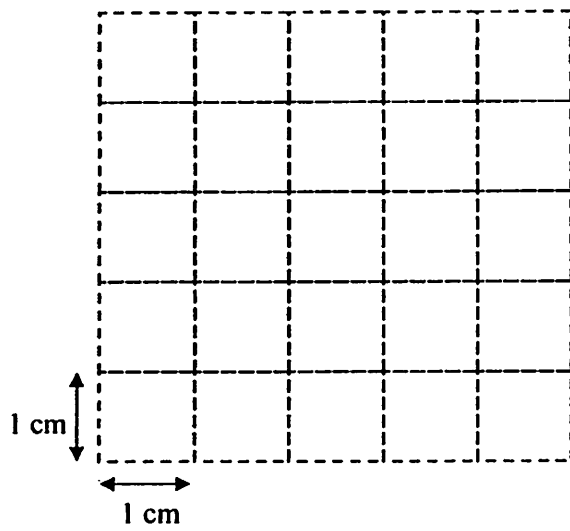


Ans: \_\_\_\_\_  $\text{cm}^2$

27. The restaurant charges \$35 per person for lunch. For every 4 persons, one of them dines free. How much will a group of 17 persons have to pay for lunch at the restaurant?

Ans: \$ \_\_\_\_\_

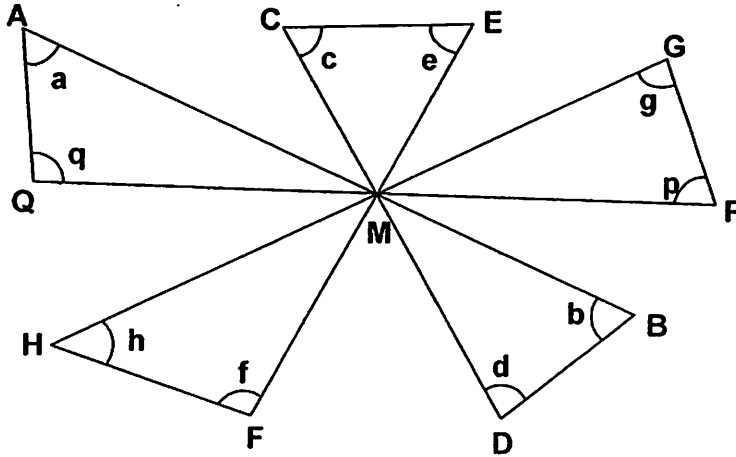
28. Draw and shade the net of the cuboid in the grid provided below.



29. The average height of 8 boys is 1 m 8 cm.  
The average height of 7 of them is 1 m 7 cm.  
How tall is the eighth boy in centimetres?

Ans: \_\_\_\_\_ cm

30. In the figure below, AMB, CMD, EMF, GMH and PMQ are straight lines.  
Find ( $\angle a + \angle b + \angle c + \angle d + \angle e + \angle f + \angle g + \angle h + \angle p + \angle q$ ).



Ans: \_\_\_\_\_<sup>o</sup>

**-End of Paper 1-**  
Please check your work carefully ☺

Math Teacher:



**RAFFLES GIRLS' PRIMARY SCHOOL  
SEMESTRAL ASSESSMENT 1  
MATHEMATICS (PAPER 2)  
PRIMARY 6**

Name: \_\_\_\_\_ ( )

Form class: P6 \_\_\_\_\_

Date: 10 May 2011

Duration: 1 h 40 min

<b>Your Score (Out of 60 marks)</b>		
	<b>Banded Math Class</b>	<b>Level</b>
<b>Highest Score</b>		
<b>Average Score</b>		

**INSTRUCTIONS TO CANDIDATES**

1. Do not turn over this page until you are told to do so.
2. Follow all instructions carefully.
3. Answer **ALL** questions and show all working clearly.
4. The use of calculator is allowed for this paper.

**For question 1 to 5 carry 2 marks each.**

**Show your working clearly in the space provided for each question and write your answer in the spaces provided. Answers in fractions or ratio must be expressed in the simplest form.**

**All diagrams are not drawn to scale.**

**Marks will be awarded for relevant working. The number of marks available is shown in brackets [ ] at the end of each question or part-question.**

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1. John, Jack and Judy shared 132 marbles in the ratio of 2 : 3 : 1.

Judy gave all her marbles equally to the 2 boys.

What is the ratio of the number of marbles John has to the number of marbles Jack has now?

Ans: \_\_\_\_\_ [2]

2. Simplify the expression  $3 - 6w + 12x + 4w + 22$ .

Ans: \_\_\_\_\_ [2]

3. At 8 a.m., Kenny started traveling from Town A to Town B at 80 km/h.  
At 10 a.m., he was still 2 hours away from Town B.  
Find the total distance from Town A to Town B.

Ans: \_\_\_\_\_ km [2]

4. There are thrice as many students in tuition centre A as there are in tuition centre B. Tuition centre C has  $\frac{5}{8}$  as many students as tuition centre B. What is the ratio of students in tuition centre A to the students in tuition centre C?

Ans: \_\_\_\_\_ [2]

5. Ashely paid \$ 102.72 for a dress inclusive of 7% G.S.T.  
How much was the G.S.T.?

Ans: \$ \_\_\_\_\_ [2]

For questions 6 to 18, show your working clearly in the space provided for each question and write your answers with the correct units in the spaces provided.

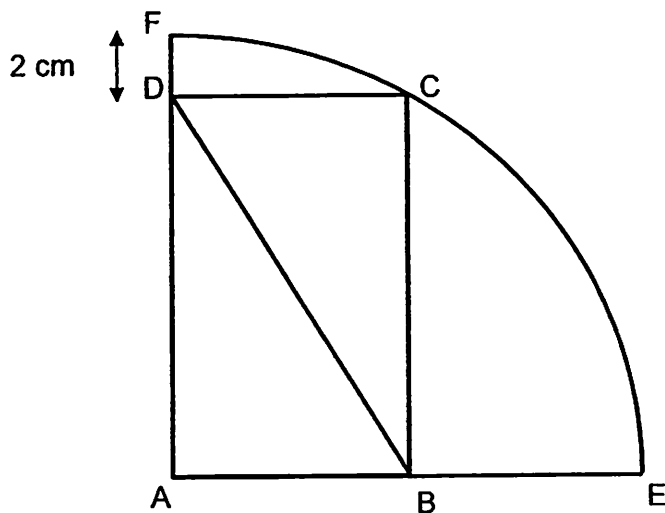
The number of marks available is shown in brackets [ ] at the end of each question or part-question.

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6. In a countdown concert, half of the audience was adults, and  $\frac{1}{3}$  of the remaining audience were boys and the rest were girls. Given that there were 2338 girls in the concert, how many people attended the concert?

Ans: \_\_\_\_\_ [3]

7. A piece of wire was bent to form the figure that made up of a quadrant AFCE and a rectangle ABCD as shown below.  
 Given that  $FD = 2$  cm and  $AE = 2y$  cm.



- (a) Find the length of  $BD$ .
- (b) Given that the length of  $FC$  is  $(2y-10)$  cm and  $DC$  is 15 cm, find the perimeter of  $FDC$ .

(Express your answers in terms of  $y$  for parts (a) and (b))

Ans: (a) \_\_\_\_\_ [1]

(b) \_\_\_\_\_ [2]

8. Mr Lim gave half of his salary and \$80 to his parents.  
Then he spent half of his remaining salary and \$70 on rent.  
How much was his salary if he had \$360 left ?

Ans: \_\_\_\_\_ [3]

9. There was an equal number of guppies and goldfish in a tank at first.  
When 60 more goldfish were put into the tank, the percentage of guppies  
decreased to 20%.  
How many fish are in the tank now?

Ans: \_\_\_\_\_ [3]

10. The ratio of the number of beads John had to the number of beads Sally had was 3 : 7 at first.  
After Sally had given some beads to John, Sally had 76 beads less than John.  
The ratio of John's number of beads to Sally's number of beads became 3 : 2.

(a) How many beads did Sally give to John?

(b) What percentage of her beads did Sally give to John?

Ans: (a) \_\_\_\_\_ [3]

(b) \_\_\_\_\_ [1]

11. Darren used 14 litres of syrup to make fruit punch.  
He added 2.35 litres of water. The fruit punch was then poured into cups of 250 ml for sale.
- (a) How many full cups of fruit punch did he get?
- (b) Each cup of fruit punch was sold for \$0.95. How much would Darren collect if he sold all the full cups of fruit punch?

Ans: (a) \_\_\_\_\_ [3]

(b) \_\_\_\_\_ [1]

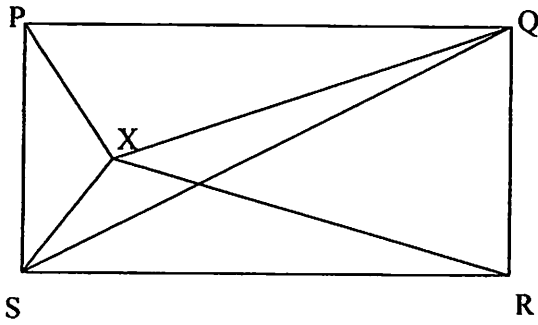
12. Mdm Goh spent some money on 45 buns.  
She spent the same amount of money on another 20 muffins.  
Each muffin cost \$0.95 more than each bun.  
How much did Mdm Goh spend altogether?

Ans: \_\_\_\_\_ [3]

13. Mary and Ben took 49 hours to complete their Science project. They worked separately on their own project. If Mary had worked 5 hours less and Ben had worked 6 hours more, Mary would have put in 2 hours more than Ben. How many hours did Mary put in for the Science project?

Ans: \_\_\_\_\_ [4]

- 14 In the figure, PQRS is a rectangle.  
The areas of triangles PXQ, PXS and XSR are  $144.5 \text{ cm}^2$ ,  $44.14 \text{ cm}^2$  and  $122.25 \text{ cm}^2$  respectively.  
Find the area of triangle XSQ.



Ans: \_\_\_\_\_ [3]

15. Shop A sold a laptop for \$1200. This was 125% of the price of a similar laptop sold in shop B.
- (a) Find the price of the laptop in Shop B.
- (b) During a sale, both shops offered the same percentage of discount. Aishah bought the laptop from shop B and found that she paid \$175.20 less than the discounted price in Shop A. What is the percentage discount given during the sale ?

Ans: (a) \_\_\_\_\_ [1]

(b) \_\_\_\_\_ [4]

16. Sue drove past Orchard Mall travelling at an average speed of 80 km/h to Maple Mall. Derek left Orchard Mall one hour earlier than Sue and took 5 hours to reach Maple Mall, travelling at an average speed of 72 km/h. Derek reached Maple Mall at 6 p.m.

(a) At what time did Sue leave Orchard Mall?

(b) How far was Sue from Maple Mall when Derek reached the destination?

Ans: a) \_\_\_\_\_ [1]

b) \_\_\_\_\_ [4]

17. Varsha had some 20-cent and 50-cent coins.

$\frac{7}{8}$  of the coins were 20-cent coins and the rest were 50-cent coins.

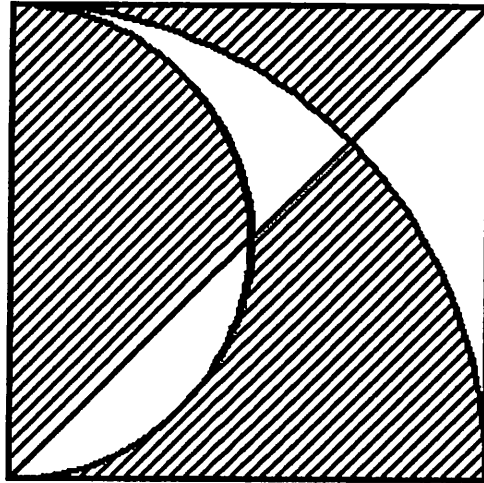
After Varsha had spent \$72.50 worth of 50-cent coins and  $\frac{5}{7}$  of the 20-cent

coins, she had  $\frac{2}{7}$  of the coins left.

Find the total amount of money Varsha left.

Ans: \_\_\_\_\_ [5]

18. The figure below is made up of a semi circle, a quadrant and a square.  
The area of the square is  $784 \text{ cm}^2$ .  
Find the total area of the shaded parts.  
Express your answer correct to 2 decimal places.



Ans: \_\_\_\_\_ [5]

**-End of Paper 2-**

Please check your work carefully ☺

Setters: Mr Cheng Kim Hong, Mr Desmond Lee and Mr Tan S.W.

RGPS

2011 P6 SA1 Answer Key

Paper 1

**Section A**

1 mark each

1	3	6	1
2	4	7	3
3	2	8	1
4	4	9	4
5	3	10	1

2 marks each

11	3
12	3
13	3
14	3
15	2

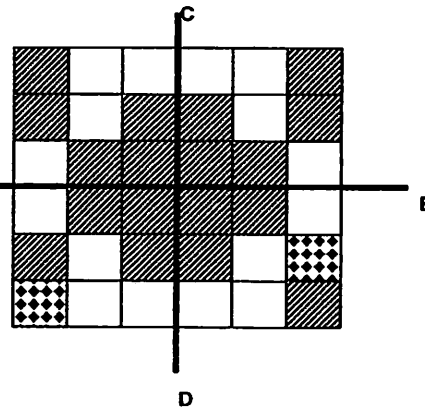
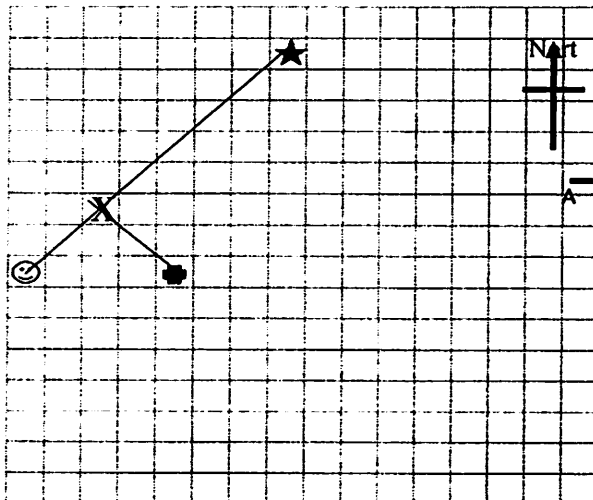
**Section B**

1 mark each

16	8523	21	0.85 or $\frac{7}{20}$
17	Below	22	$11\pi$
18	Below	23	$\frac{7p}{8}$ or $0.875p$
19	$1\frac{11}{24}$	24	90
20	$\frac{4}{25}$	25	10.15

Q17

Q18



2 marks each

26)  $48 \times 2$  [M1] =  $96\text{cm}^2$

$96 \times 3 = \underline{288\text{ cm}^2}$  [A1]

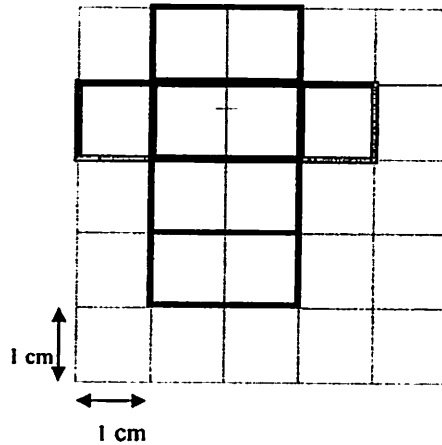
27)  $17 \div 4 = 4 \text{ R } 1$

$4 \times 3 = 12$

$12 + 1 = 13$

$13 \times 35 = \underline{\$455}$  [M1, A1]

28)



Or other possible nets

29)  $864 - 749 = 115$  (M1\*,A1)

\*M1 is given when pupil shows understand of average concept till the last step with subtraction. No penalty for incorrect conversion.

30)  $360^\circ - 180^\circ = 180^\circ$

$180^\circ \times 5 = 900^\circ$

$900^\circ - 180^\circ$  [M1]

$= 720^\circ$  [A1]

**Paper 2**

1)  $132 \div 6 = 22$   
 $22 \div 2 = 11$  [M1]  
 $2 \times 22 = 44$   
 $44 + 11 = 55$   
 $3 \times 22 = 66$   
 $66 + 11 = 77$   
 $55 : 77 = \underline{5 : 7}$  [A1] (OR)

John : Jack : Judy  
2 : 3 : 1  
= 4 : 6 : 2 [M1]  
(Judy gives each 1 unit)  
John : Jack  
5 : 7 [A1]

2)  $25 + 42w$

3)  $80 \times 20 = 160$   
 $160 \times 2 = 320$  (M1,A1)  
Or  
 $80 \times 4 = 320$  (M1, A1)

4) A : B      C : B  
3 : 1      5 : 8  
x8    x8  
24 : 8 [M1]

A : C  
24 : 5 [A1]

5)  $107\% \rightarrow \$102.72$  [M1]  
 $7\% \rightarrow \$6.72$  [A1]

6) Method 1  
 $2338 \div 2 \times 3 = 3507$  [M1]  
 $3507 \times 2$  [M1]  
= 7014 [A1]

Method 2  
 $2338 \div 2 = 1169$  [M1]  
 $1169 \times 6 = \underline{7014}$  [M1, A1]

7) (a)  $2y$  cm [A1]

(b)  $y - 10 + 15 + 2$  [M1]  
 $= 2y + 7$  [A1]

8) Method 1

Amt Mr Lim was left with = \$360

Amt he had before putting into the savings bank =  $$(360 + 70) \times 2$  [M1]  
 $= \$860$

Amt he had before giving to his parents =  $$(860 + 80) \times 2$  [M1]  
 $= \underline{\$1880}$  [A1]

Method 2

$\$360 + \$70 = \$430$

$\$430 + \$70 = \$500$  (Rent)

$\$500 + \$360 = \$860$  [M1]

$\$860 + \$80 = \$940$

$\$940 + \$80 = \$1020$  (Parents)

$\$1020 + \$500 + \$360 = \underline{\$1880}$  [M1, A1]

9) Method 1

At first : 50U guppies & 50U goldfish

After 60 goldfish: 50U = 20%

Therefore .5U = 2%

$80\% = 200U$

60 additional fish = 150U (1m)

1 fish = 2.5U

$250U \div 2.5U = 100$  fish (1m + 1A)

Ans: 100 fish

Method 2

Guppies : Gold fish

1 : 1

+ 60 gold fish

---

1 : 4

3 units  $\rightarrow$  60 [M1]

1 unit  $\rightarrow$  20

5 units  $\rightarrow$  100 [M1, A1]

There are 100 fish



- 13) Let the number of hours John put in for the Science project be 1 unit

John	1 unit	6 h		
Mary	1 unit	6 h	2 h	5 h

Mary had put in : 1 unit + 13 h [M1]

Total number of hours put in by the two of them :

$$1u + 1u + 13 \rightarrow 49$$

$$2u \rightarrow 49 - 13$$

$$2u \rightarrow 36$$

[M1]

$$1u \rightarrow 18$$

No. of hours put in by Mary =  $18 + 13 = \underline{\underline{31 \text{ hours}}}$  [M1, A1]

- 14) Area of PQS

$$144.5 + 122.25 \text{ [M1]}$$

$$= 266.75$$

Area of XSQ

$$266.75 - 144.5 - 44.15 \text{ [M1]}$$

$$= 78.1 \text{ [A1]}$$

15.

(a) Price of laptop in shop B:  $\frac{\$1200}{125} \times 100 = \underline{\$960}$  (A1)

(b)	<u>Shop A</u>	<u>Shop B</u>
1%	\$12	\$9.60

Difference in 1% : \$2.40 (M1)

$\$175.20 \div \$2.40 = 73$  (M1)

$100 - 73 = 27$  (M1 A1)

The discount is 27%

**Alternative solutions for Q15b**

(b)	<u>Shop A</u>	<u>Shop B</u>
100 %	1200	960

Difference :  $1200 - 960 = 240$  (M1)

$\frac{175.20}{240} \times 100 \% = 73 \%$  (M1)

$100 \% - 73 \% = \underline{27 \%}$  (M1 A1)

**(OR)**

$1200 - 960 = 240$  (M1)

$240 - 175.20 = 64.80$  (M1)

$\frac{64.80}{240} \times 100 \% = \underline{27 \%}$  (M1 A1)

**(OR)**

$125 - 100 = 25$

25% → 175.2 (M1)

100% → 700.8

125% → 876

$\frac{876}{1200} = \frac{73}{100}$  or  $\frac{700.8}{960} = \frac{73}{100}$  (M1)

$100 - 73 = 27$  (M1 A1)

Ans : 27 %

**(OR)**

$175.2 \times 4 = 700.8$  (M1)

$960 - 700.8 = 259.20$  (M1)

$\frac{259.20}{960} \times 100 \% = \underline{27 \%}$  (M1 A1)

Note: Pupils may use listing/Guess and check method. Award M2 when the working approaches the solution. Award M1 if first step of the working is correct but the pupil did not follow through. If part (a) is wrong and the pupil used the listing method to find the solution, award M1 or M2 accordingly as mentioned earlier.

16. (a)  $6 - 5 = 1$   
Derek left the junction of Maple Mall at 1 pm  
Sue left there at 2 pm. (A1)

- (b) Distance between the 2 locations =  $5 \times 72 = 360$  km (M1)  
Distance Sue travelled in 4 hours =  $4 \times 80 = 320$  km (M1)  
Diff. in distances  $\rightarrow 360 - 320 = \underline{40}$  (M1, A1)

Ans : 40 km

(OR)

(b)  $72 \times 5 = 360$  (M1)

$\frac{360}{80} = 4.5$  (M1)

$4.5 - 4 = 0.5$

$0.5 \times 80 = 40$  (M1 A1)

Ans : 40 km

17  $72.50 \div 0.50 = 145$  (Number of 50-cent coins used) (M1)

Fraction of 20-cent coins left  $\rightarrow \frac{7}{8} \times \frac{2}{7} = \frac{2}{8} = \frac{14}{56}$

Fraction of 50-cent coins at first  $\rightarrow \frac{1}{8} = \frac{7}{56}$

Fraction of coins left after spending  $\rightarrow \frac{2}{7} = \frac{16}{56}$

Fraction of 50-cent coins left  $\rightarrow \frac{16}{56} - \frac{14}{56} = \frac{2}{56}$

Fraction of 50-cent coins spent  $\rightarrow \frac{7}{56} - \frac{2}{56} = \frac{5}{56}$

5 units  $\rightarrow$  145 coins (M1)

1 unit  $\rightarrow$  29 coins

2 units  $\rightarrow$  58 coins (No of 50-cent coins left)

14 units  $\rightarrow$  406 coins (No of 20-cent coins left)

Total amt left  $\rightarrow (58 \times \$0.50) + (406 \times \$0.20) = \underline{\underline{\$110.20}}$

[(M1, M1 A1)]

(OR)

$\frac{5}{56} \rightarrow 145$  (M1)

$\frac{16}{56} \rightarrow 1464$

$\frac{56}{56} \rightarrow 1624$

$\frac{7}{8} \times 1624 = 1421$  (No. of 20 cent coins at first)

$\frac{2}{7} \times 1421 = 406$  (No. of 20 cent coins at the end)

$406 \times 0.20 = 81.20$  (M1)

$1624 \div 8 = 203$

$203 - 145 = 58$  (M1)

$58 \times 0.50 = 29$  (M1)

$81.20 + 29 = 110.20$  (A1)

Ans: **\$110.20**

**Alternative Solution**

17.  $49 - 35 = 14$   
 $16 - 14 = 2$   
 $56 - 49 = 7$   
 $7 - 2 = 5$   
 $5u \rightarrow 72.50$  (M1)  
 $1u \rightarrow 14.50$   
 $2u \rightarrow 29$  (M1)  
 $\frac{29}{0.50} = 58$  } (M1)  
 $\frac{58}{2} \times 14 = 406$   
 $406 \times 0.20 = 81.20$  (M1)  
 $81.20 + 29 = 110.20$  (A1)

Ans: **\$110.20**

**(OR)**

17.

	20 cent coins	50 cent coins	Total
Before	$7u \rightarrow 6.125p$	$1u \rightarrow 0.875p$	$7p$
Spending	$-5u \rightarrow 4.375p$	$-145$	
After	$2u \rightarrow 1.75 p$	$1u - 145 \rightarrow 0.875p - 145$	

$8u \rightarrow 7p$

$1 u \rightarrow 0.875 p$

$7 u \rightarrow 6.125 p$

$5u \rightarrow 4.375 p$

$2u \rightarrow 1.75 p$

$4.375 p - 145 = 5 p$

$0.625 p \rightarrow 145$  (M1)

$1 p \rightarrow 232$

$1.75 p \rightarrow 406$

$406 \times 0.20 = 81.20$  (M1)

$0.875 p \rightarrow 203$  } (M1)

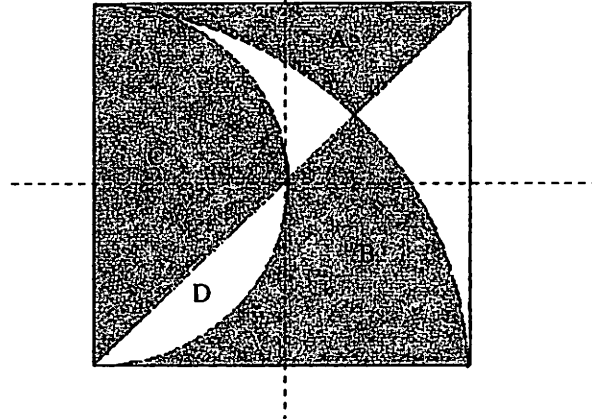
$203 - 145 = 58$

$58 \times 0.50 = 29$  (M1)

$81.20 + 29 = 110.20$  (A1)

Ans: **\$110.20**

18. Finding 1 side of the square:  $784 \text{ cm}^2$   
 $28\text{cm} \times 28\text{cm}$   
 Length of square : 28 cm (M1)



$$\text{Area D} = \frac{1}{4} \times 14\text{cm} \times 14\text{cm} \times \pi - \frac{1}{2} \times 14\text{cm} \times 14\text{cm} \quad (\text{M1})$$

$$\approx 55.9380 \text{ cm}^2$$

$$\text{Area A + B} = \frac{1}{2} \times 28\text{cm} \times 28\text{cm} - 55.9380 \text{ cm}^2 \quad (\text{Area D}) \quad (\text{M1})$$

$$= 336.0692 \text{ cm}^2$$

$$\text{Area C} = \frac{1}{2} \times 14\text{cm} \times 14\text{cm} \times \pi - 56.9380 \text{ cm}^2 \quad (\text{Area D}) \quad (\text{M1})$$

$$= 251.9380 \text{ cm}^2$$

$$\text{Shaded Area} = \text{Area A+B+C}$$

$$= 588.0072 \text{ cm}^2$$

Ans: 588.01 cm<sup>2</sup> (A1)

**(OR)**

$$\sqrt{784} = 28 \quad (\text{M1})$$

$$\frac{1}{2} \times 14 \text{ cm} \times 28\text{cm} = 196 \quad (\text{M1})$$

$$\frac{1}{2} \times 28 \text{ cm} \times 28\text{cm} = 392 \quad (\text{M1})$$

$$196 + 392 = 588 \quad (\text{M1})$$

Ans: 588.00 cm<sup>2</sup> (A1)

Note : Deduct (A1) when pupils did not correct their answer to 2 decimal places.

18. Find the shaded areas (Based on the diagram for Areas A, B and C) and the unshaded one (Area D)

$$\sqrt{784} = 14 \quad (M1)$$

$$\text{Area D} = \frac{1}{4} \times 14 \times 14 \times \pi - \frac{1}{2} \times 14 \times 14 = (49\pi - 98) \quad (M1)$$

$$\begin{aligned} \text{Area C} &= \left(\frac{1}{2} \times 14 \times 14 \times \pi\right) - (49\pi - 98) = 98\pi - (49\pi - 98) \\ \text{Area B} &= \left(\frac{1}{8} \times 28 \times 28 \times \pi\right) - (49\pi - 98) = 98\pi - (49\pi - 98) \end{aligned} \quad (M1)$$

$$\begin{aligned} \text{Area A} &= \frac{1}{2} \text{ of Area of Square (across its diagonals)} - \left(\frac{1}{8} \times 28 \times 28 \times \pi\right) \\ &= 392 - 98\pi \quad (M1) \end{aligned}$$

$$\begin{aligned} \text{Total Shaded Areas} &: 392 - 98\pi + [98\pi - (49\pi - 98)] + [98\pi - (49\pi - 98)] \\ &= 392 - 98\pi + 98\pi - 49\pi + 98 + 98\pi - 49\pi + 98 \\ &= 392 + 98 + 98 \\ &= 588 \end{aligned}$$

$$\text{Ans: } \underline{588.00 \text{ cm}^2} \quad (A1)$$

(OR)

$$\sqrt{784} = 14 \quad (M1)$$

Area C – break up into quadrant (C1) and triangle (C2)

$$\text{Area C1} : \frac{1}{4} \times 14 \times 14 \times \pi = 49\pi \quad (\text{or } 153.93804)$$

$$\text{Area C2} : \frac{1}{2} \times 14 \times 14 = 98$$

$$\text{Big quadrant} : \frac{1}{4} \times 28 \times 28 \times \pi = 196\pi \quad (\text{or } 615.7521601)$$

$$\begin{aligned} \text{Area A} &: (\text{Area of big square} - \text{area of big quadrant}) \div 2 \\ &= \frac{784 - 196\pi}{2} = 392 - 98\pi \quad (\text{or } 84.12391995) \quad (M1) \end{aligned}$$

$$\begin{aligned} \text{Area D} &= \frac{1}{4} \times 14 \times 14 \times \pi - \frac{1}{2} \times 14 \times 14 = (49\pi - 98) \\ & \quad (\text{or } 55.93804) \quad (M1) \end{aligned}$$

Area B : (Area of big quadrant  $\div$  2) – Area D

$$\begin{aligned} &= 98\pi - (49\pi - 98) = 49\pi + 98 \\ & \quad (\text{or } 251.9380401) \quad (M1) \end{aligned}$$

Total shaded area : A + B + C1 + C2  $\approx$  588.00

$$\text{Ans: } \underline{588.00 \text{ cm}^2} \quad (A1)$$

18. By folding the square figure (top half down) – part of area C segment can be transferred to Area D and by folding across the diagonal, Area A can be mapped to its corresponding unshaded part.

Then only  $\frac{1}{4}$  of the square figure is not shaded. Thus, to find the area of the shaded parts, it is  $\frac{3}{4}$  of the figure shaded.

$$\frac{3}{4} \times 784 = 588$$

Ans: 588.00 cm<sup>2</sup> (A1)

Note : As long as pupils could work out the shaded/unshaded areas where marks are being awarded whether in terms of  $\pi$  or in decimal places, award the respective method marks (e.g. 84.12391995, 55.93804 or 251.9380401). However, if pupils tried to find combine various methods but never get the solution, award the method marks that gives the pupil that best mark and not all method marks. (e.g the pupil give these working values : 84.12391995, 55.93804, 251.9380401, 392 and 196 – it does not mean the pupil gets 5 method marks – it should be M1 x 3 instead of maybe M1 x 2)