

SEMESTRAL ASSESSMENT 1

**PRIMARY 6
MATHEMATICS PAPER 1
(BOOKLET A)**

11 MAY 2016

Total time for Booklets A and B: 50min

6. The use of calculator is NOT ALLOWED.

Paper 1 (Booklet A)

Questions 1 to 10 carry 1 mark each. Questions 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 the oval (1, 2, 3 or 4) on the Optical Answer Sheet. You are not allowed to use a calculator. (20 marks)

1 What is six million, four hundred and five thousand and eleven?

(1) 6 004 511

(2) 6 005 411

(3) 6 405 011

(4) 6 450 011

2 Find the value of the expression $\frac{4a}{4} + 3$ when $a = 8$.

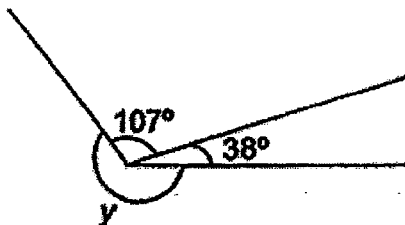
(1) 8

(2) 11

(3) 12

(4) 15

3 The figure below is not drawn to scale. Find $\angle y$.



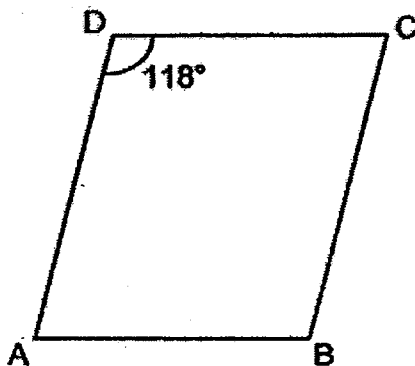
(1) 35°

(2) 125°

(3) 145°

(4) 215°

- 4 ABCD is a parallelogram. Find $\angle BCD$.



- (1) 28°
(2) 62°
(3) 118°
(4) 124°
- 5 Evaluate $\frac{4}{5} + \frac{1}{3}$
- (1) $\frac{5}{12}$
(2) $2\frac{2}{5}$
(3) $3\frac{3}{4}$
(4) $\frac{4}{15}$
- 6 Robin is $2\frac{1}{3}$ times as old as Jonathan. Find the ratio of Robin's age to the total age of the two boys.
- (1) 7 : 10
(2) 7 : 3
(3) 3 : 10
(4) 3 : 7

- 7 Dylan is $\frac{5}{6}$ as tall as Gilbert. Colin is $\frac{7}{10}$ as tall as Dylan. What is the ratio of Dylan's height to Gilbert's height to Colin's height?

- (1) 5 : 6 : 7
- (2) 7 : 10 : 12
- (3) 10 : 12 : 7
- (4) 20 : 12 : 7

- 8 Express 0.7 as a percentage.

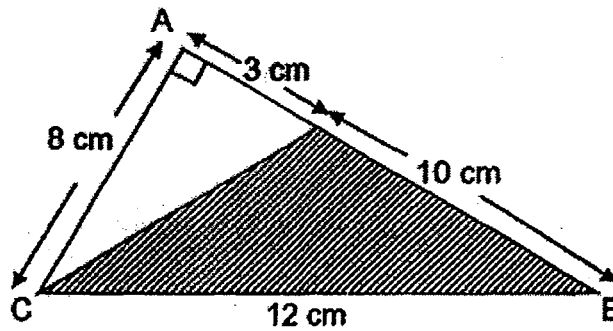
- (1) 0.007%
- (2) 0.7%
- (3) 7%
- (4) 70%

- 9 The radius of a circle is 14 cm. What is its circumference?

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

- (1) 22 cm
- (2) 44 cm
- (3) 88 cm
- (4) 616 cm

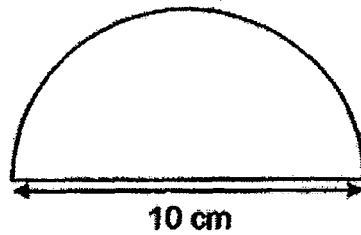
- 10 The figure shows a right-angled triangle ABC. Find the area of the shaded part.



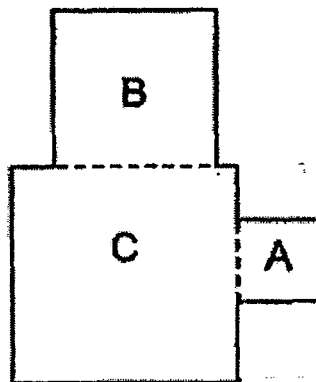
- (1) 12 cm^2
 (2) 40 cm^2
 (3) 52 cm^2
 (4) 60 cm^2
- 11 Chip ate $\frac{1}{9}$ of a chicken pie and gave away $\frac{3}{4}$ of the remainder to Dale.
 What fraction of the chicken pie did Chip have left?

- (1) $\frac{1}{12}$
 (2) $\frac{5}{36}$
 (3) $\frac{2}{9}$
 (4) $\frac{2}{3}$

- 12 Find the perimeter of the semicircle in terms of π .



- (1) 5π cm
 - (2) 10π cm
 - (3) $(5\pi + 10)$ cm
 - (4) $(10\pi + 10)$ cm
- 13 The figure below is made up of three squares, A, B and C. A has side 3 cm, B has side 5 cm and C has side 6 cm. What is the perimeter of the figure?



- (1) 36 cm
- (2) 40 cm
- (3) 56 cm
- (4) 70 cm

- 14 Apples are sold only in packs of 5 for \$4. What is the maximum number of apples that can be bought with \$22.40?

(1) 28
(2) 25
(3) 5
(4) 4

- 15 Ben, Clive and Dave shared \$900. Clive received 20% more than Ben. Dave received 20% less than Ben. How much more did Clive receive than Dave?

(1) \$360
(2) \$240
(3) \$120
(4) \$60

-- End of Booklet A --

SEMESTRAL ASSESSMENT 1

**PRIMARY 6
MATHEMATICS PAPER 1
(BOOKLET B)**

11 MAY 2016

The use of calculator is NOT ALLOWED.

Questions 16 to 25 carry 1 mark each. Write your answers in the spaces provided. For questions which require units, give your answers in the units stated. (10 marks)

Do not write in this space.

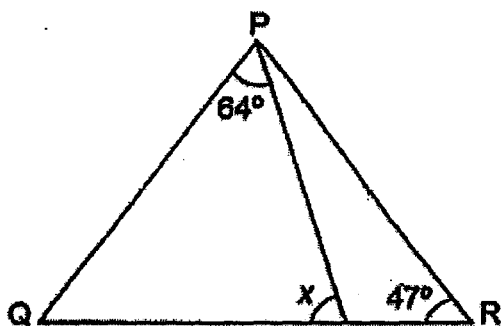
16 Find the value of $9 \times 3 + (16 - 4) \div 3$.

Ans: _____

17 Simplify $7k + 7 - 3k + 5 - 2 + 4k$.

Ans: _____

18 PQR is an isosceles triangle. Find $\angle x$.



Ans: _____°

Do not write
in this space.

- 19 Eight litres of water are poured equally into $\frac{1}{4}$ litre bottles. How many of such bottles are filled with water?

Ans: _____

- 20 The number of curry pies, sardine pies and chicken pies on a shelf are in the ratio of 4 : 3 : 5. What fraction of the pies are chicken pies?

Ans: _____

- 21 Jessie has 4 blue markers and 5 green markers. What percentage of the green markers is the blue markers?

Ans: _____ %

- 22 The radius of a circle is 18.2 cm. Find its diameter.

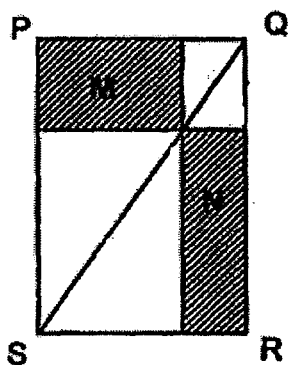
Do not write
in this space.

Ans: _____ cm

- 23 Find the area of a quadrant of diameter 20 cm.
(Take $\pi = 3.14$)

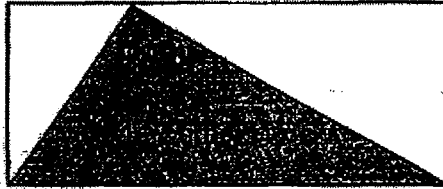
Ans: _____ cm^2

- 24 The figure below, PQRS is a rectangle. QS is a straight line. What is the ratio of Area M to Area N?



Ans: _____ : _____

- 25 The area of the shaded triangle is 117 cm^2 . What is the area of the rectangle?



Ans: _____ cm^2



Do not write
in this space.

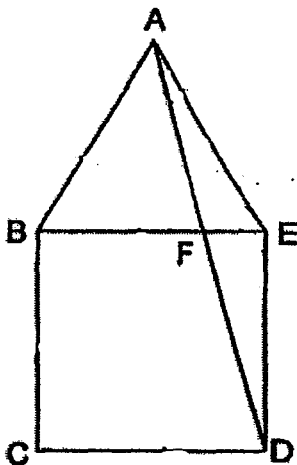
Questions 26 to 30 carry 2 marks each. Show your working clearly and write your answers in the spaces provided. For questions which require units, give your answers in the units stated. (10 marks)

Do not write in this space.

- 26 Mrs Lin is $8x$ years old. She is four times as old as her daughter. What will be their total age in 5 years' time? Express your answer in terms of x .

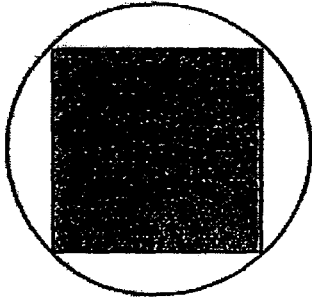
Ans: _____ years old

- 27 In the figure below, ABE is an equilateral triangle and BCDE is a square. Find $\angle BFA$.



Ans: _____°

- 28 The diameter of a circle in the figure below is 12 cm. Find the area of the square.



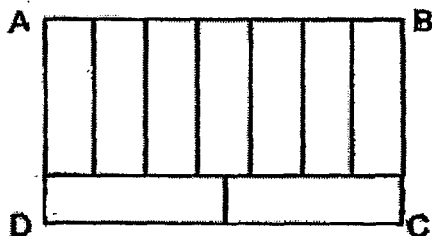
Ans: _____ cm^2

Do not write
in this space.

- 29 Mrs Pavia bought a book and a pen. The price of a pen is 60% that of a book. The book costs \$10 more than the pen. Find the amount Mrs Pavia paid for the two items.

Ans: \$ _____

- 30 Rectangle ABCD is divided into 9 identical small rectangles as shown. Given that the perimeter of rectangle ABCD is 46 cm, find the perimeter of one small rectangle.



Ans: _____ cm

END OF PAPER 1

SEMESTRAL ASSESSMENT 1

**PRIMARY 6
MATHEMATICS
PAPER 2**

11 MAY 2016

Total time: 1h 40min

The use of an approved calculator is expected, where appropriate.

Figure 1

Figure 2

Figure 3

Figure 4

Figure 5

Figure 6

Figure 7

Figure 8

Figure 9

Figure 10

Figure 11

Figure 12

Figure 13

Figure 14

Figure 15

Figure 16

Figure 17

Figure 18

Figure 19

Figure 20

Figure 21

Figure 22

Figure 23

Figure 24

Figure 25

Figure 26

Figure 27

Figure 28

Figure 29

Figure 30

Figure 31

Figure 32

Figure 33

Figure 34

Figure 35

Figure 36

Figure 37

Figure 38

Figure 39

Figure 40

Figure 41

Figure 42

Figure 43

Figure 44

Figure 45

Figure 46

Figure 47

Figure 48

Figure 49

Figure 50

Figure 51

Figure 52

Figure 53

Figure 54

Figure 55

Figure 56

Figure 57

Figure 58

Figure 59

Figure 60

Figure 61

Figure 62

Figure 63

Figure 64

Figure 65

Figure 66

Figure 67

Figure 68

Figure 69

Figure 70

Questions 1 to 5 carry 2 marks each. Show your working clearly and write your answers in the spaces provided. For questions which require units, give your answer in the units stated. (10 marks)

Do not write in this space.

- 1 June has some orange juice. She can fill the orange juice equally into either 4 glasses or 7 cups such that the amount of orange juice in each glass or cup is a whole number. Given that each glass or cup must have more than 5 ml of orange juice, what is the least amount of orange juice she must have?

Ans: _____ ml

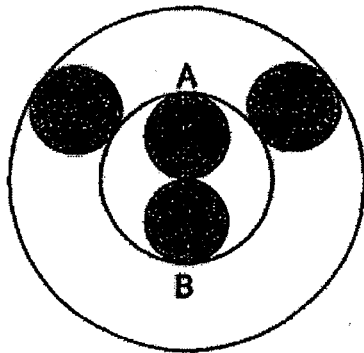
- 2 Rosita mixed cups of milk, syrup and water in the ratio of 2 : 3 : 7 to make a drink for a party. If she used 36 cups of milk, how many cups of drink did she make?

Ans: _____

- 3 Timberlake saved 40% of his salary every month. When Timberlake's salary was reduced by 10%, his savings became \$1800. What was his salary at first?

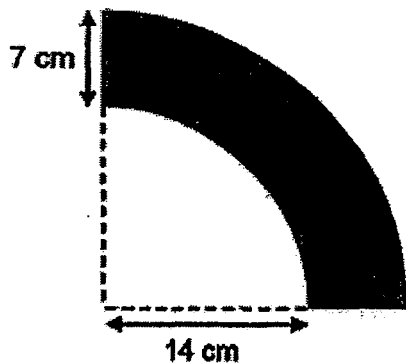
Ans: \$ _____

- 4 The figure below shows 4 shaded identical circles within 2 unshaded circles. The diameter of the small unshaded circle, AB, is 4 cm. What fraction of the biggest circle is shaded?



Ans: _____

- 5 The figure below shows 2 quadrants. Find the perimeter of the shaded portion. Give your answer correct to 2 decimal places.



Ans: _____ cm

Questions 6 to 18 show your working clearly and write your answers in the spaces provided. The number of marks available is shown in brackets [] at the end of each question or part question. (50 marks)

Do not write in this space.

- 6 Dean, Edric and Jonas had a total of 275 marbles. Edric had twice as many marbles as Dean. Jonas had 40 marbles fewer than Edric. How many marbles did Edric have?

Ans: _____ [3]

- 7 $\frac{2}{7}$ of the number of lego blocks Tevin has is equal to $\frac{3}{5}$ of the number of lego blocks Ryker has. The two boys have 930 lego blocks altogether. How many lego blocks does Tevin have?

Ans: _____ [3]

Do not write in
this space.

- 8 There were 550 plates, cups and bowls in a shop. When $\frac{3}{7}$ of the plates and 22 cups were sold, the ratio of the number of plates to the number of cups to the number of bowls became 8 : 3 : 5. How many bowls were there in the shop at first?

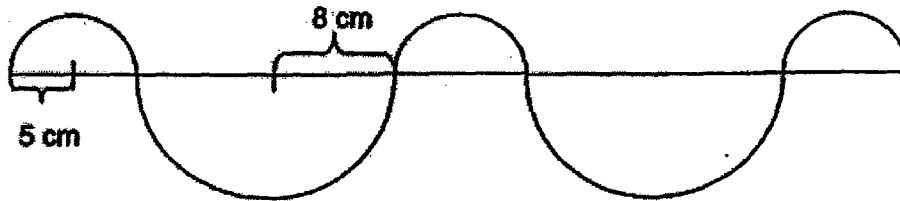
Ans: _____ [3]

- 9 The usual price of a dress was \$30. It was given a 20% discount during a sale. A GST of 7% was charged on the discounted price. Ai Swee paid the dress with a \$50 note. How much change did she receive?

Ans: _____ [3]

10

Ah Huat bends a piece of wire to form a figure made up of five semi-circles as shown below. The 2 big identical semi-circles have a radius of 8 cm each and the other 3 small identical semi-circles have a radius of 5 cm each. Find the length of the wire. (Take $\pi = 3.14$)



Do not write in this space.

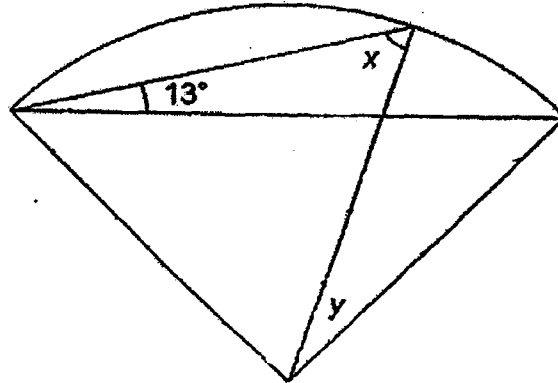
Ans: _____ [3]



11 The figure below shows a quadrant. Find

(a) $\angle x$

(b) $\angle y$



Do not write in this space.

Ans: (a) _____ [2]

(b) _____ [2]



- 12 Three identical basins, A, B and C, were each filled with some water. Basin A had a mass of 3.8 kg when it was $\frac{1}{2}$ full. Basin B had a mass of 2 kg when it was $\frac{1}{5}$ full. What fraction of Basin C was filled with water when the mass was 5.6 kg? Express your answer in its simplest form.

Do not write in this space

Ans: _____ [4]

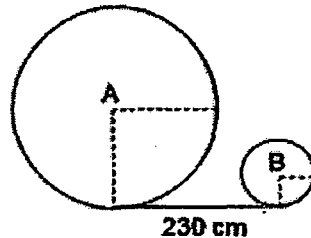


- 13 30% of the buffaloes in a herd were males. When 60 more female buffaloes joined the herd, the percentage of male buffaloes in the herd dropped to 20%. How many male buffaloes were there in the herd?

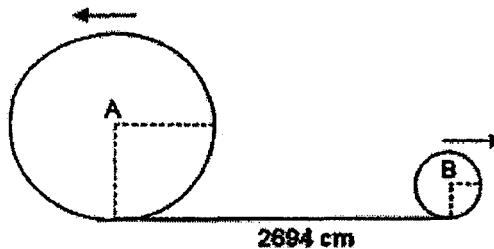
Do not write in this space

Ans: _____ [4]

- 14 Two wheels shown below with centres A and B are 230 cm apart. The diameter of the big wheel is 70 cm. The ratio of the radius of the small wheel to the radius of the big wheel is 2 : 5.



Both wheels are rolled out in opposite direction shown until they are 2694 cm apart. The two wheels need to make the same number of revolutions. How many revolutions does each wheel make assuming that each wheel must make a complete revolution? (Take $\pi = \frac{22}{7}$)



Ans: _____ [4]



- 15 The ratio of the area of Rectangle A to that of Rectangle B is 9 : 4.
When 34 identical 2-cm squares are added to Rectangle B, it becomes
a square. Find the perimeter of the square if Rectangle A has an area
of 423 cm².

Do not write in
this space

Ans: _____ [4]



Do not write in
this space

- 16 Abigail and Bonnie had \$2880 altogether. Abigail had \$400 less than Bonnie. During a shopping trip, Abigail spent 4 times as much money as Bonnie. Bonnie then had twice as much money left as Abigail. How much more money did Bonnie have left than Abigail?

Ans: _____ [5]



Do not write in
this space

- 17 There were some pencils and pens in a box. If 5 pencils were removed from the box, the number of pencils left would be $\frac{1}{6}$ of the total number of remaining pencils and pens. If 9 pens were removed from the box, the number of pencils would be $\frac{1}{3}$ of the number of pens left. How many pencils and pens were there in the box?

Ans: _____ [5]



- 18 There were two crates of fruits at a fruit stall. Each crate contained some mangoes and papayas. The ratio of the number of mangoes to the number of papayas in Crate A was $11 : 8$. In Crate B, the ratio of the number of papayas to the number of mangoes was $6 : 5$. Half of the papayas from Crate A were transferred to Crate B. In the end, the total number of fruits in Crate A was 195 and the ratio of the number of mangoes to the number of papayas in Crate B was $9 : 16$. How many fruits were there in Crate B in the end?

Do not write in
this space

Ans: _____ [5]



-- End of Paper 2 --

ANSWER SHEET

SCHOOL : PEI HWA PRESBYTERIAN PRIMARY SCHOOL
 LEVEL : PRIMARY 6
 SUBJECT : Maths
 TERM : SEMESTRAL ASSESSMENT 1

CONTACT :

PAPER 1 BOOKLET A

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
3	2	4	2	2	1	3	4	3	2

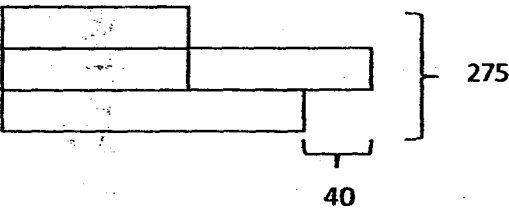
Q11	Q12	Q13	Q14	Q15
3	3	2	2	3

PAPER 1 BOOKLET B

Q16) $9 \times 3 + (16 - 4) \div 3 = 9 \times 3 + 12 \div 3 = 27 + 4 = 31$	Ans : 31
Q17) $7K + 7 - 3K + 5 - 2 + 4K = 7K - 3K + 4K + 7 + 5 - 2 = 8K + 10$	Ans : $8K + 10$
Q18) $\angle PQR = 47^\circ$ $\angle X = 180^\circ - 64^\circ - 47^\circ = 69^\circ$	Ans: 69°
Q19) $8 \div \frac{1}{4} = 8 \times 4 = 32$	Ans : 32
Q20) C: S: CH: Total 4: 3: 5: 12 Fraction of CH = $\frac{5}{12}$	Ans : $\frac{5}{12}$

Q21)	$\frac{B}{G} = \frac{4}{5} \times 100\% = 80\%$	Ans: 80%
Q22)	Diameter = $18.2 \times 2 = 36.4$	Ans: 36.4cm
Q23)	$\frac{1}{4} \times 10 \times 10 \times 3.14 = 78.5$	Ans: 78.5 cm ²
Q24)	Since $\Delta PQS = \Delta QSR$, $A = B$ and $C = D$ So, $M = N$ Ratio is 1:1	Ans:1:1
Q25)	Area of $\Delta = \frac{1}{2} \times b \times h = 117$ $b = \text{length of rectangle}$ $h = \text{breadth of rectangle}$ Area of rectangle = $117 \times 2 = 234$	Ans:234cm ²
Q26)	Daughter $\rightarrow 8x \div 4 = 2x$ In five years time, sum of their age $= 8x + 5 + 2x + 5 = 10x + 10$	Ans: (10x+10) years old
Q27)	$\angle AEB = 60^\circ$ $\angle AED = 60^\circ + 90^\circ = 150^\circ$ $\angle EAD = (180^\circ - 150^\circ) \div 2 = 15^\circ$ $\angle BFA = 15^\circ + 60^\circ = 75^\circ$	Ans: 75°
Q28)	Half of the square = A-triangle = $\frac{1}{2} \times 12 \times 6 = 36$ Area of the square = $36 \times 2 = 72$	Ans: 72cm ²
Q29)	Price of book = 100% Price of pen = 60% Diff $\rightarrow 40\% = \$10$ Total $\rightarrow 160\% = \frac{10}{40} \times 160 = 40$	Ans: \$40
Q30)	Breadth of small rectangle = 1U Length of small rectangle = 3.5U Length of AB = 7U Length of AD = 4.5U Perimeter of ABCD $\rightarrow 7U + 7U + 4.5U + 4.5U = 46$ $23U = 46$ $1U = 2$ Perimeter of a small rectangle $\rightarrow 1U + 1U + 3.5U + 3.5U$ $= 9U$ $= 18$	Ans: 18cm

PAPER 2

Q1) Orange Juice: 5ml, 6, 7, 8, 9, 10, 11, 12, 13, 14 4 glasses : 20ml, 24, 28, 32, 36, 40, 44, 48, 52, <u>56</u> 7 cups : 35ml, 42, 49, <u>56</u>, 63, 70, 77, 84, 91, 98 Ans: 56ml
Q2) M : S : W : Total 2 : 3 : 7 : 12 If M = 2 x 18 = 36, then Total = 12 x 18 = 216 Ans: 216
Q3) Salary → 100% Saving → 40% Salary reduce by 10% → 90% $90 \times \frac{40}{100} = 36\% \text{ of saving}$ 36% → 1800 100% → $\frac{1800}{36} \times 100 = 5000$ Ans: 5000
Q4) Radius of the shaded circle = $4 \div 2 \div 2 = 1$ Area of shaded circle = π Total area of shaded circle = 4π Area of bigger circle = $\pi \times 4 \times 4 = 16\pi$ Fraction shaded = $\frac{4\pi}{16\pi} = \frac{1}{4}$ Ans : $\frac{1}{4}$
Q5) Quarter arc of small quadrant = $\frac{1}{4} \times 14 \times 2 \times \pi = 7\pi$ Quarter arc of large quadrant = $\frac{1}{4} \times 21 \times 2 \times \pi = 10.5\pi$ Perimeter of the shaded portion = $7\pi + 10.5\pi + 7 + 7 \approx 68.98$ Ans: 68.98cm
Q6) D E J  275 40 5U → 275 + 40 5U → 315 1U → 63 E → 2U = 63 x 2 = 126 Ans: 126 marbles

Q7) $\frac{2}{7}$ of Tevin = $\frac{3}{5}$ of Ryker
 $\frac{6}{21}$ of Tevin = $\frac{6}{10}$ of Ryker
 Total lego blocks = $21 + 10 = 31$
 $31U \rightarrow 930$
 $1U \rightarrow 30$
 Tevin has $21U \rightarrow 21 \times 30 = 630$

Ans: 630

Q8) After
 $P : C : B$
 $8 : 3 : 5$

After selling $\frac{3}{7}$, P has $\frac{4}{7} \rightarrow 8U$
 So, before selling, $\frac{7}{7} \rightarrow 14U$
 $14U + (3U + 22) + 5U = 550$
 $22U = 550 - 22$
 $22U = 528$
 $1U = 24$
 $B \rightarrow 5U = 5 \times 24 = 120$

Ans: 120

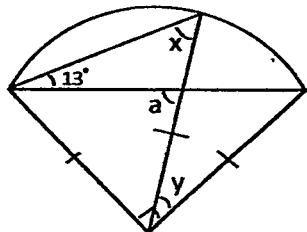
Q9) After 20% discount, price $\rightarrow 30 \times \frac{80}{100} = 24$
 With 7% GST, price $\rightarrow 24 \times \frac{107}{100} = 25.68$
 Change she received $\rightarrow 50 - 25.68 = 24.32$

Ans: \$24.32

Q10) Diameter of 3 small semi-circles = 30
 Diameter of 2 big semi-circles = 32
 Circumference of 3 small semi-circles = $3 \times \frac{1}{2} \times 2 \times 5 \times 3.14 = 47.1$
 Circumference of 2 big semi-circles = $2 \times \frac{1}{2} \times 2 \times 8 \times 3.14 = 50.24$
 Total length of wire = $47.1 + 50.24 + 30 + 32 = 159.34$

Ans: 159.34cm

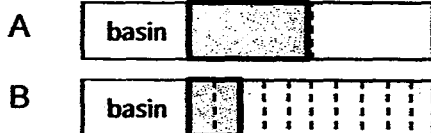
Q11) a) $\angle X = 13^\circ + 45^\circ = 58^\circ$
 b)



$\angle a = 13^\circ + 58^\circ = 71^\circ$
 $\angle Y = 71^\circ - 45^\circ = 26^\circ$

Ans: (a) 58°
 (b) 26°

Q12)



$$\text{Diff: } 3U \rightarrow 3.8 - 2$$

$$3U \rightarrow 1.8$$

$$1U \rightarrow 0.6$$

$$\begin{aligned} \text{Weight of basin} &= 3.8 - (5 \times 0.6) \\ &= 3.8 - 3.0 = 0.8 \end{aligned}$$

$$\text{Weight of water in basin C} = 5.6 - 0.8 = 4.8$$

$$1U \rightarrow 0.6$$

$$?U \rightarrow 4.8$$

$$\frac{4.8}{0.6} = 8U$$

$$\text{Basin C} \rightarrow \frac{8}{10} \rightarrow \frac{4}{5} \text{ filled with water}$$

Ans: $\frac{4}{5}$

Q13)

Before

M : F

30 : 70

3 : 7

After

M : F

20 : 80

1 : 4

3 : 12

$$\text{Diff in F} \rightarrow 12U - 7U = 60$$

$$5U = 60$$

$$1U = 12$$

$$M \rightarrow 3U = 36$$

Ans: 36

Q14)

$$\text{Radius of big wheel} = 70 \div 2 = 35$$

Small radius: big radius

$$2 : 5$$

$$\text{Radius of small wheel} = 14$$

$$\text{Circumference of big wheel} = \pi \times 70 = \frac{22}{7} \times 70 = 220$$

$$\text{Circumference of small wheel} = \pi \times 28 = \frac{22}{7} \times 28 = 88$$

$$\text{Distance rolled} = 2694 - 230 = 2464$$

$$\text{No. of revolutions made} = 2464 \div (220 + 88) = 8$$

Ans: 8

Q15)

A : B

9 : 4

423 : 188

$$\text{Area of B} = 188$$

$$\text{Area added} = 2 \times 2 \times 34 = 136$$

$$\text{New area of B} = 324$$

$$\text{Side of square} = \sqrt{324} = 18$$

$$\text{Perimeter} = 18 \times 4 = 72$$

Ans: 72cm

Q18) Crate A

Before:

M : P : Total

11 : 8 : 19

After:

M : P : Total

11 : 4 : 15

15U → 195

1U → 13

Papaya transferred: $4U = 13 \times 4 = 52$

Crate B

Before:

M : P

5 : 6

45 : 54

After:

M : P

9 : 16

45 : 80

Diff in P → $80U - 54U = 26U$

26U → 52

1U → 2

Total fruits in B → $45U + 80U = 125U = 125 \times 2 = 250$

Ans: 250

