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.**

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

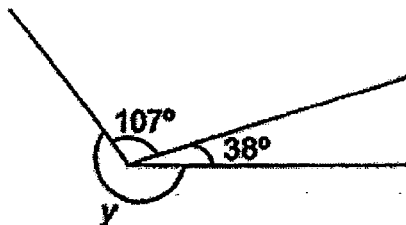2   Find the value of the expression $\dfrac{4a}{4} + 3$ when $a = 8$.

    (1)   8

    (2)   11

    (3)   12

    (4)   15

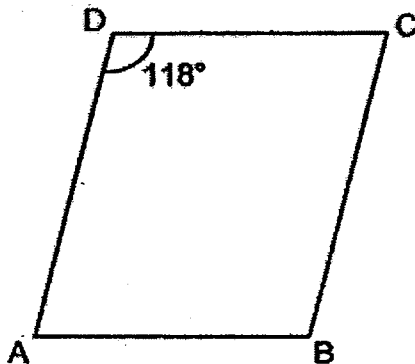3   The figure below is not drawn to scale. Find $\angle y$.

    (1)   35°

    (2)   125°

    (3)   145°

    (4)   215°

4   ABCD is a parallelogram. Find ∠BCD.

- (1)   28°
- (2)   62°
- (3)   118°
- (4)   124°

5   Evaluate $\dfrac{4}{5} + \dfrac{1}{3}$

- (1) $\dfrac{5}{12}$
- (2) $2\dfrac{2}{5}$
- (3) $3\dfrac{3}{4}$
- (4) $\dfrac{4}{15}$

6   Robin is $2\dfrac{1}{3}$ 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
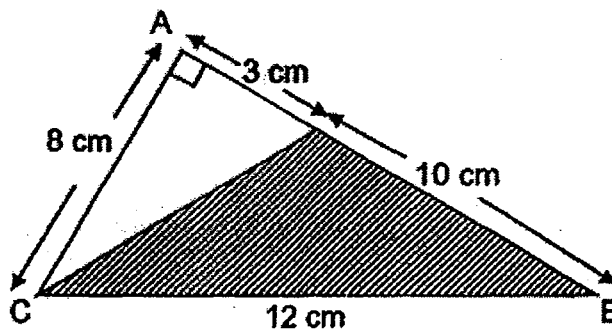
   4)   20 : 12 : 7

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

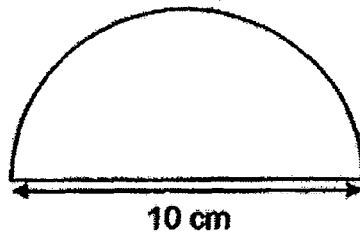   (3)   88 cm

   (4)   616 cm

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

(1)   12 cm²

(2)   40 cm²

(3)   52 cm²

(4)   60 cm²

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.

10 cm

(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?
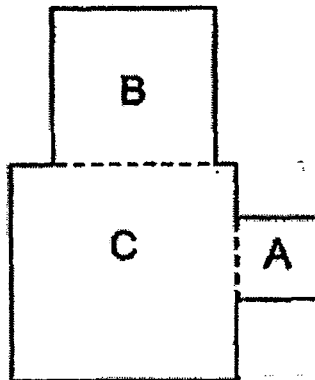
(1)   36 cm

(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.
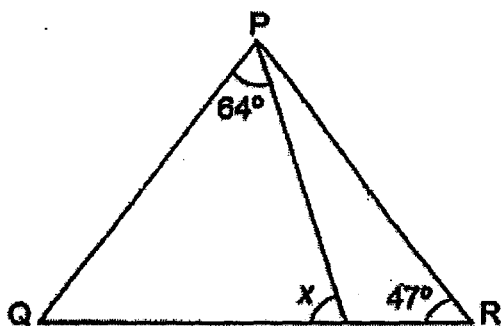
Do not write in this space.

(10 marks)

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: _____ °

19　Eight litres of water are poured equally into $\dfrac{1}{4}$ 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: _____ %

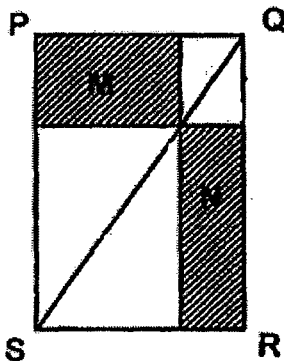22   The radius of a circle is 18.2 cm. Find its diameter.

Ans: _____ cm

23   Find the area of a quadrant of diameter 20 cm.
      (Take π = 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 cm² What is the area of the rectangle?

Ans: _____ cm²

Questions 26 to 30 carry 2 marks each. Show your working clearly and write your answers 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
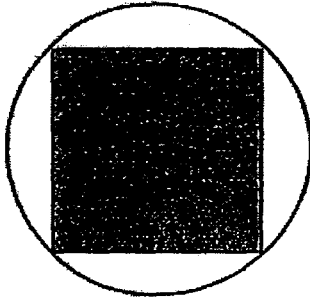   terms of x.

Ans: _____ years old

27   In the figure below, ABE is an equilateral triangle and BCDE is a
      square. Find ∠BFA.

Ans: _____ °
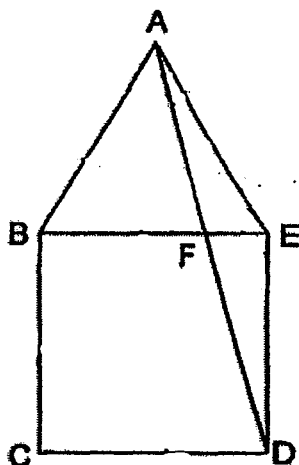
28   The diameter of a circle in the figure below is 12 cm. Find the area of the square.

Ans: _____ cm²

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.
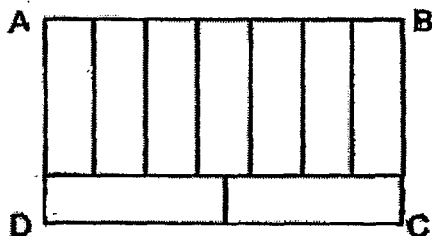
Ans: _____ cm

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.

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)**

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?
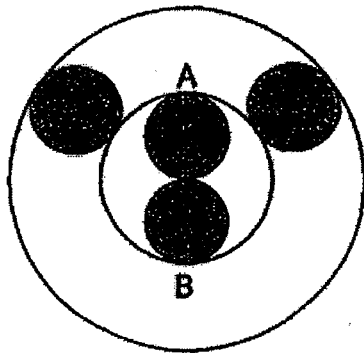
   Ans: _____

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?
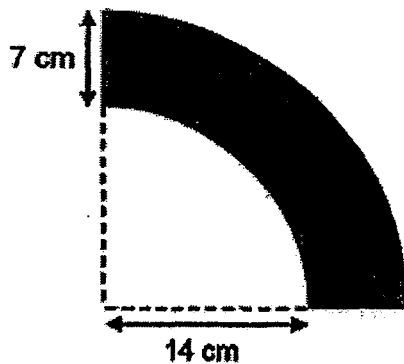
   Ans: $ _____

1

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.

7 cm

14 cm

Ans: _____ cm

2

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)

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]

3

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?
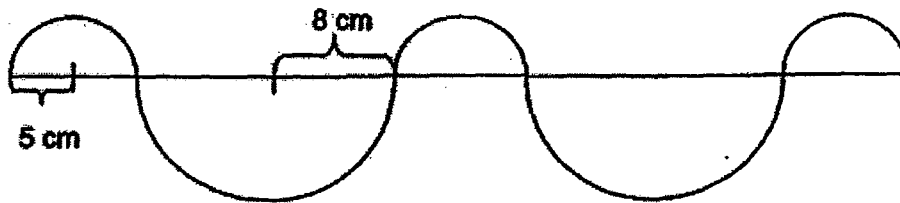
Ans:_____ [3]

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?
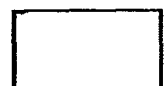
Ans:_____ [3]

4

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 π = 3.14)
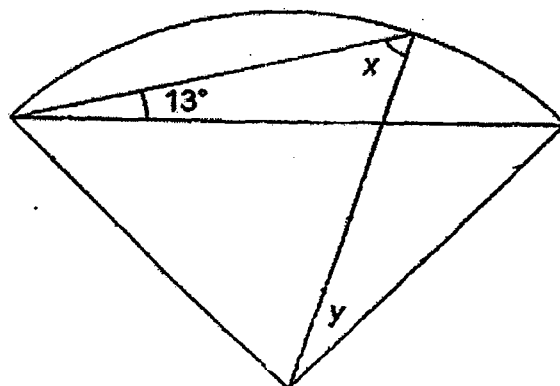

Ans:_____ [3]

11 The figure below shows a quadrant. Find
    (a) $\angle x$
    (b) $\angle y$

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.

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?

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.

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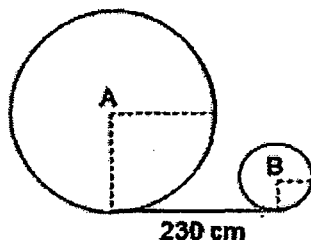
Both wheels are rolled out in opposite direction shown until they are 2694 cm apart. The two wheels need to make the same number of revolutions. How many revolutions does each wheel make assuming that each wheel must make a complete revolution? (Take $\pi = \dfrac{22}{7}$)

2694 cm
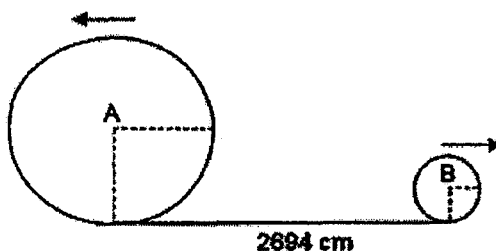
Ans:_____ [4]

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.

Ans:_____ [4]

10

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]

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]

(Go on to the next page)

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?

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

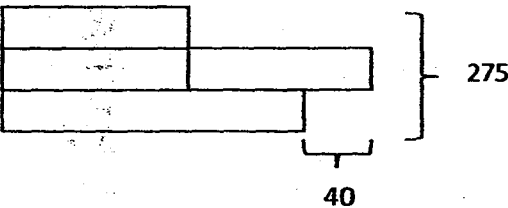| Q11	Q12	Q13	Q14	Q15
3	3	2	2	3

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) $\angle PQR = 47°$
$\angle X = 180° - 64° - 47° = 69°$

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)	$\dfrac{B}{G} = \dfrac{4}{5} \times 100\% = 80\%$ **Ans: 80%**
Q22)	Diameter = 18.2 x 2 = 36.4 **Ans: 36.4cm**
Q23)	$\dfrac{1}{4} \times 10 \times 10 \times 3.14 = 78.5$ **Ans: 78.5 cm²**
Q24)	Since ΔPQS = ΔQSR, A = B and C = D So, **M = N** Ratio is 1:1 **Ans:1:1**
Q25)	Area of $\Delta = \dfrac{1}{2} \times b \times h = 117$ b = length of rectangle h = breadth of rectangle Area of rectangle = 117 x 2 = 234 **Ans:234cm²**
Q26)	Daughter → 8x ÷ 4 = 2x In five years time, sum of their age = 8x + 5 + 2x + 5 = 10x + 10 **Ans: (10x+10) years old**
Q27)	$\angle AEB = 60°$ $\angle AED = 60° + 90° = 150°$ $\angle EAD = (180° - 150°) \div 2 = 15°$ $\angle BFA = 15° + 60° = 75°$ **Ans: 75°**
Q28)	Half of the square = A triangle = $\dfrac{1}{2} \times 12 \times 6 = 36$ Area of the square = 36 x 2 = 72 **Ans: 72cm²**
Q29)	Price of book = 100% Price o pen = 60% Diff → 40% = $10 Total → 160% = $\dfrac{10}{40} \times 160 = 40$ **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 → 7U + 7U + 4.5U + 4.5U = 46 $\qquad\qquad\qquad\qquad$ 23U = 46 $\qquad\qquad\qquad\qquad$ 1U = 2 Perimeter of a small rectangle → 1U + 1U + 3.5U + 3.5U $\qquad\qquad\qquad\qquad$ = 9U $\qquad\qquad\qquad\qquad$ = 18 **Ans: 18cm**

PAPER 2

Q1)	Orangle Juice: 5ml, 6, 7, 8, 9, 10, 11, 12, 13, 14 4 glasses : 20ml, 24, 28, 32, 36, 40, 44, 48, 52, **56** 7 cups : 35ml, 42, 49, **56**, 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% $90 \times \frac{40}{100} = 36\%$ *of saving* 36% → 1800 100% → $\frac{1800}{36} \times 100 = 5000$ **Ans**: 5000
Q4)	Radius of the shaded circle = 4 ÷ 2 ÷ 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 → 930
	1U → 30
	Tevin has 21U → 21 x 30 = 630
	Ans: 630

Q8)	After
	P : C : B
	8 : 3 : 5
	After selling $\frac{3}{7}$, P has $\frac{4}{7}$ → 8U
	So, before selling, $\frac{7}{7}$ → 14U
	14U + (3U+22) + 5U = 550
	22U = 550 −22
	22U = 528
	1U = 24
	B → 5U = 5 x 24 = 120
	Ans: 120

Q9)	After 20% discount, price → 30 x $\frac{80}{100}$ = 24
	With 7% GST, price → 24 x $\frac{107}{100}$ = 25.68
	Change she received → 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 x $\frac{1}{2}$ x 2 x 5 x 3.14 = 47.1
	Circumference of 2 big semi-circles = 3 x $\frac{1}{2}$ x 2 x 8 x 3.14 = 50.24
	Total length of wire = 47.1 + 50.24 + 30 + 32 = 159.34
	Ans: 159.34cm
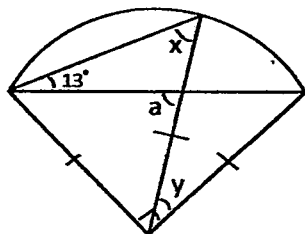
Q11)	a) $\angle X = 13° + 45° = 58°$
	b)
	$\angle a = 13° + 58° = 71°$
	$\angle Y = 71° - 45° = 26°$
	Ans: (a) 58°
	(b) 26°

Q12)
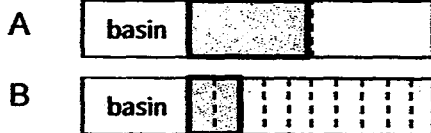
A | basin |
B | basin |

Diff: $3U \rightarrow 3.8 - 2$
$3U \rightarrow 1.8$
$1U \rightarrow 0.6$
Weight of basin $= 3.8 - (5 \times 0.6)$
$= 3.8 - 3.0 = 0.8$
Weight of water in basin C $= 5.6 - 0.8 = 4.8$
$1U \rightarrow 0.6$
$?U \rightarrow 4.8$
$\frac{4.8}{0.6} = 8U$
Basin C $\rightarrow \frac{8}{10} \rightarrow \frac{4}{5}$ filled with water

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

Q13) Before
M : F
30 : 70
3 : 7

After
M : F
20 : 80
1 : 4
3 : 12

Diff in F $\rightarrow$ 12U − 7U = 60
5U = 60
1U = 12
M $\rightarrow$ 3U = 36

Ans:36

Q14) Radius of big wheel = 70 ÷ 2 = 35
Small radius : big radius
2 : 5
Radius of small wheel = 14
Circumference of big wheel $= \pi \times 70 = \frac{22}{7} \times 70 = 220$
Circumference of small wheel $= \pi \times 28 = \frac{22}{7} \times 28 = 88$
Distance rolled = 2694 − 230 = 2464
No. of revolutions made = 2464 ÷ (220 + 88) = 8

Ans: 8

Q15) A : B
9 : 4
423 : 188
Area of B = 188
Area added = 2 × 2 × 34 = 136
New area of B = 324
Side of square = $\sqrt{324}$ = 18
Perimeter = 18 × 4 = 72

Ans: 72cm

Q16)

A

B   2880

2U = 2880 - 400
2U = 2480
1U = 1240
A had 1240
B had 1640

A

B

A: 1P + 4S → 1240
   2P + 8S → 2480
B: 2P + S → 1640
      7S → 840
      1S → 120

1P + 4x120 → 1240
      1P → 1240 – 480
      1P → 760

Ans: $760 more

Q17) Scenario A

Pencil

Pen

Scenario B
Pencil

Pen

Pen: 5U = 3U + 15 + 9
      2U = 24
      1U = 12
      5U = 60

Pencil: 12+5=17
Total = 60 + 17 = 77

Ans: 77

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 x 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 x 2 = 250

Ans: 250