SA1

AI TONG SCHOOL

2021

MID-YEAR EXAMINATION
PRIMARY 6

MATHEMATICS
PAPER 1

DURATION : 1 h

DATE : 18 MAY 2021

INSTRUCTIONS

Do not turn over this page until you are told to do so.
Follow all instructions carefully.
Answer all questions.
Shade your answers in the Optical Answer Sheet (OAS) provided.
The use of calculators is **NOT** allowed.

Name: _____( )

Class: Primary 6 _____ **Marks:**

Parent's Signature : _____	**Paper 1** 45
Date : _____	

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. (20 marks)

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1 Which of the following is between 4.1 and 4.2?

(1) 4.05
(2) 4.12
(3) 4.21
(4) 4.50

2 Which of the following is likely to be the height of a classroom door?

(1) 20 cm
(2) 2 cm
(3) 200 cm
(4) 2000 cm

3 Express $3a + 5 - a - 2$ in its simplest form.

(1) $2a - 3$
(2) $2a + 3$
(3) $4a - 3$
(4) $4a + 3$

4 40% of a number is 320. What is the number?

(1) 128

(2) 192

(3) 480

(4) 800

5 What is the missing number in the ☐?

$10 : \square = 15 : 6$

(1) 1

(2) 2

(3) 5

(4) 4

6 Randy had \$30. He spent $\frac{3}{5}$ of it on a book. How much did he spend?

(1) \$18

(2) \$12

(3) \$10

(4) \$6

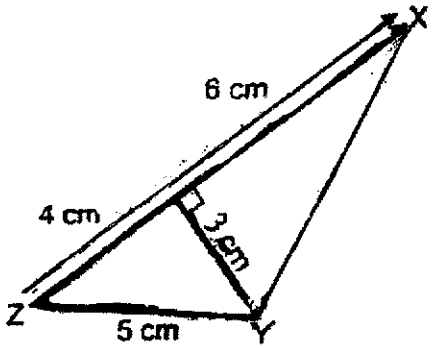
7 How many thirds are there in $5\frac{2}{3}$?

(1) 10
(2) 13
(3) 15
(4) 17

8 A group of 6 girls and 4 boys played a game.
The average score of the girls was 17. The average score of the boys was 19.
Find the total score for all the children.

(1) 36
(2) 76
(3) 102
(4) 178

9 What is the area of triangle XYZ?



(1) 15 cm^2
(2) 18 cm^2
(3) 25 cm^2
(4) 30 cm^2

10 There are 3 different poles, A, B and C. Pole A is 4 times as long as Pole B. Pole C is twice as long as Pole A. Find the ratio of the length of Pole C to the total length of Pole A and Pole B.

(1) 8 : 13

(2) 8 : 5

(3) 2 : 1

(4) 1 : 4

11 Jane had some roses. 40% of her roses were pink and the remaining roses were white. She gave away some white roses and had 25% of her white roses left. What percentage of her roses were given away?

(1) 15%

(2) 30%

(3) 35%

(4) 45%

12 A rectangular tank measuring 10 cm by 8 cm by 6 cm was $\frac{2}{3}$ filled with water. When all the water in the rectangular tank was poured into a container, 120 cm^3 of water overflowed. What was the capacity of the container?

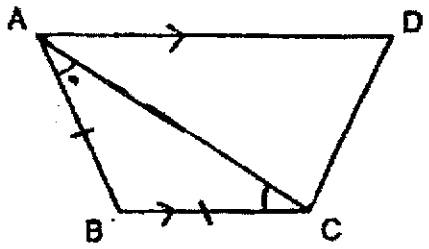
(1) 200 cm^3

(2) 320 cm^3

(3) 360 cm^3

(4) 440 cm^3

13 ABCD is a trapezium. AD // BC and AB = BC. Which of the following is true?



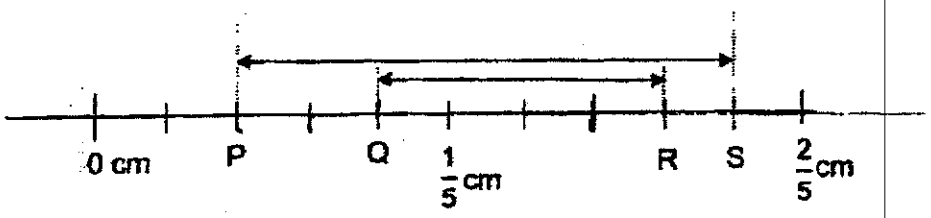
(1) ∠ADC and ∠ABC are equal.

(2) ∠DAB is twice the size of ∠DAC.

(3) The sum of ∠DAB and ∠ABC is more than 180°.

(4) The sum of ∠ABC and ∠BCD is 180°.

14 In the number line below, what is the difference between the length of PS and the length of QR?



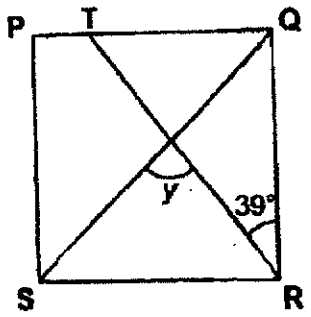
(1) 0.04 cm

(2) 0.08 cm

(3) 0.12 cm

(4) 0.16 cm

15 In the figure below, PQRS is a square. SQ and TR are straight lines. Find $\angle y$.



(1) 51°
(2) 78°
(3) 84°
(4) 96°

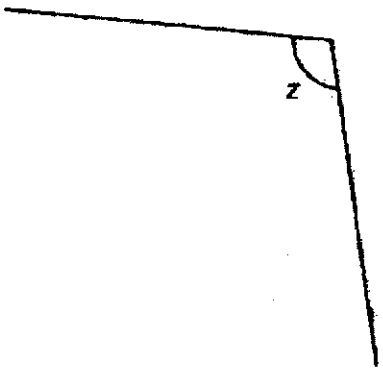
Booklet B

Questions **16** to **20** carry 1 mark each. Write your answers in the spaces provided. For questions which require units, give your answers in the units stated. (5 marks)

16 Write one million, twelve thousand and twenty in numerals.

Ans : _____

17 Measure and write down the size of ∠ z.



Ans: _____ °

18 Express $\frac{2}{7}$ as a decimal. Give your answer correct to 2 decimal places.

Ans: _____

19 Peter spent 20% of his money on a bag and $\frac{1}{2}$ of his money on a shirt.
What percentage of his money did he spend?

Ans: _____ %

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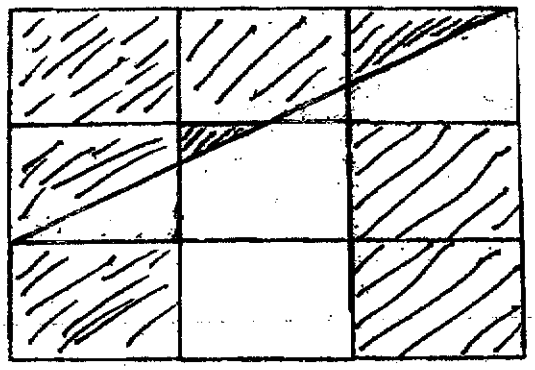
20 The figure below is made up of identical rectangles.
What fraction of the figure is shaded?



Ans: _____

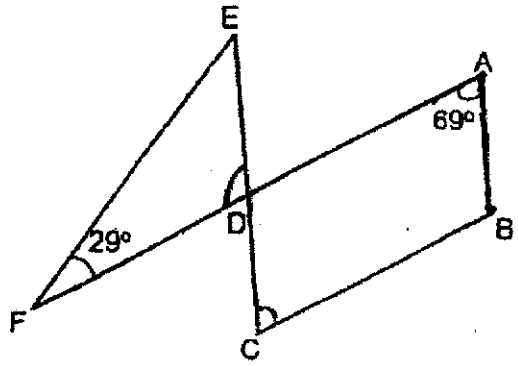
2

Questions **21** to **30** carry 2 marks each. Show your working clearly in the space provided for each question and write your answers in the spaces provided.
For questions which require units, give your answers in the units stated. (20 marks)

21 Find the value of $\frac{30 - 2m}{4}$ when $m = 10$.
Leave your answer as a mixed number in its simplest form.

Ans: _____

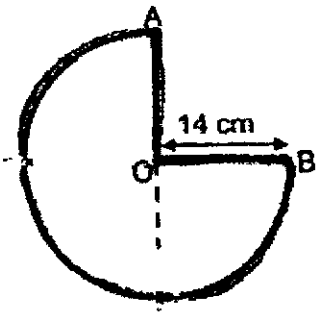
22 In the figure below, ABCD is a parallelogram and DEF is a triangle.
AF and CE are straight lines. $\angle$ DAB = 69° and $\angle$ EFD = 29°. Find $\angle$ DEF.



Ans: _____

23 The figure is made up of a semicircle and a quadrant AO = OB.

Find the perimeter of the figure. Take $\pi = \frac{22}{7}$.



Ans: _____ cm

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24 Lucas participated in a thirty-minute quiz. During the first ten minutes, he managed to answer $\frac{1}{3}$ of the questions. In the next twenty minutes, he managed to answer another 27 questions. He only managed to answer $\frac{5}{6}$ of all the questions in the quiz. How many questions were there altogether in the quiz?

Ans: _____

25 Figure 1 shows a rectangular sheet of paper WXYZ. The sheet of paper is folded at one corner as shown in Figure 2 so that ∠ WAX = 104°. Find ∠ WAB.

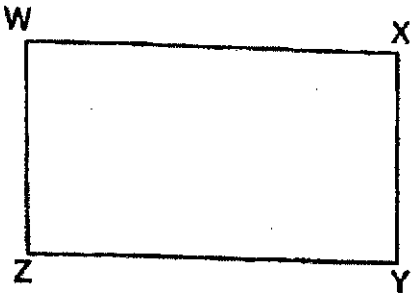

Figure 1

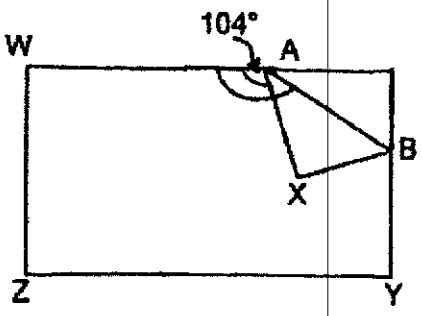

Figure 2

Ans: _____

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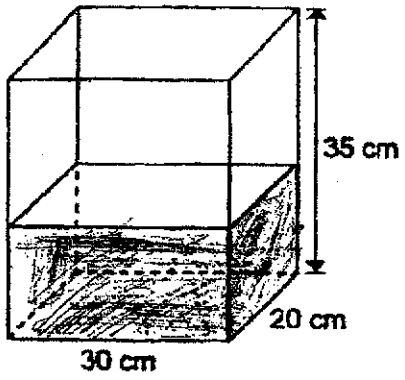
26 A tank is $\frac{3}{7}$ filled with water. How much water is in the tank?
Give your answer in ℓ.



Ans: _____ ℓ

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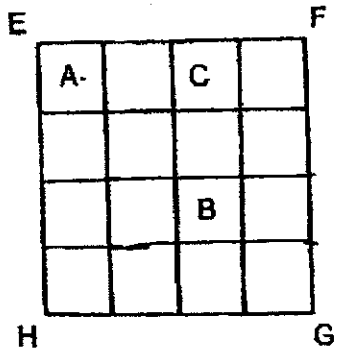
27 In the figure below, EFGH is a square. The ratio of the area of rectangle C to the area of square B is 1 : 3. Find the ratio of the area of square A to the area of square EFGH.



Ans: _____

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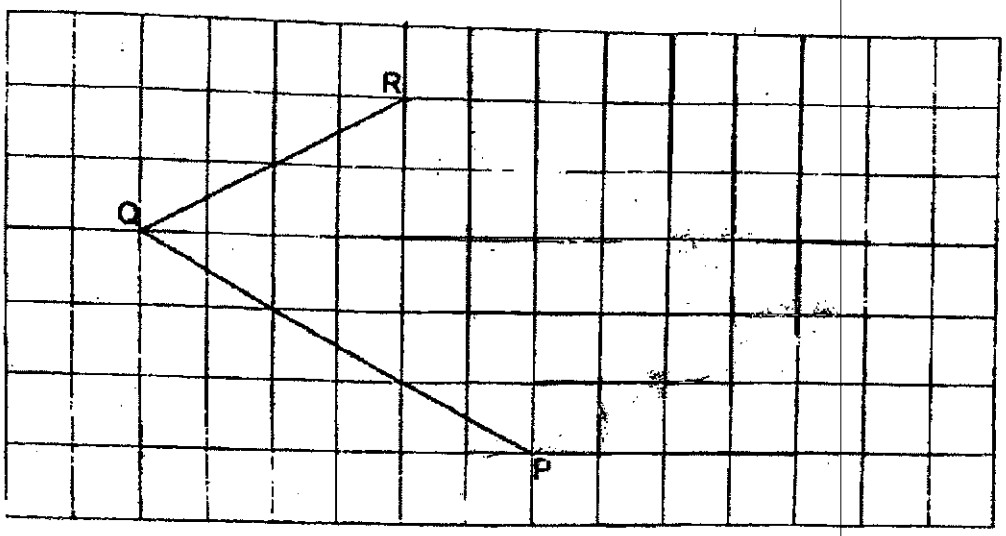
28 A train travels between two stations 50 km apart at an average speed of 120 km/h. How many more minutes will it take to complete the same journey when it reduces its speed to 100 km/h?

Ans: _____ min

4

29 In the square grid below, PQ and QR are straight lines which form two sides of a parallelogram PQRS.
Complete the drawing of parallelogram PQRS. Label point S.



30 There is an equal number of men and women at a gym. The average mass of all the men is 75 kg. The average mass of all the women is 60 kg.

Each statement below is either true, false or not possible to tell from the information given. For each statement, put a tick (✓) in the correct column.

Statement	True	False	Not possible to tell
All the women are lighter than the men.			
The average mass of all the adults is more than 75 kg.			

End of Paper 1

4

AI TONG SCHOOL

2021

MID-YEAR EXAMINATION
PRIMARY 6

MATHEMATICS
PAPER 2

DURATION : 1 h 30 min

DATE : 18 MAY 2021

INSTRUCTIONS

Do not turn over this page until you are told to do so.
Follow all instructions carefully.
Answer all questions.
Write your answers in this booklet.
The use of an approved calculator is allowed.

Name: _____( )

Class: Primary 6 _____

Marks :

Paper 1	/45
Paper 2	/55
Total	/100

Parent's Signature : _____

Date : _____

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

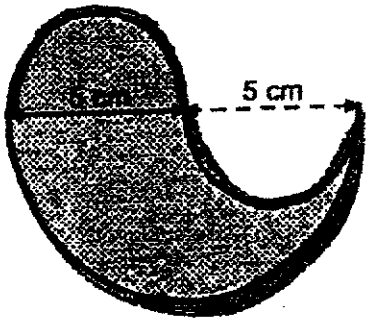
(10 marks)

Do not write in this space

1 In 2020, some participants took part in a talent contest. In 2021, the number of participants increased by 10% to 3520. Find the number of participants in 2020.

Ans: _____

2 The figure below is made up of semicircles.
Find the perimeter of the figure. Give your answer in terms of π.



Ans: _____ cm

3 Dexter had $210 more than Brad at first. Dexter spent $\frac{5}{6}$ of his money and Brad spent $\frac{3}{5}$ of his money. In the end, Dexter and Brad had the same amount of money left. Find the amount of money Brad had at first.

Do not write in this space

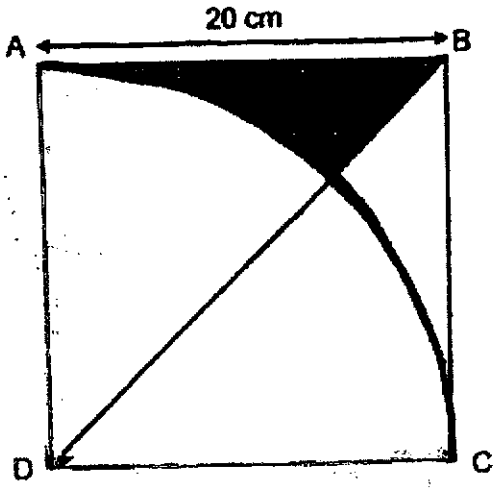
Ans: $ _____

4 Mary used p strawberries to decorate 3 similar cakes.
After decorating 21 such cakes, she had 4 strawberries left.
Express the number of strawberries Mary had at first in terms of p.

Ans: _____

5 The figure below is made up of a square ABCD of side 20 cm and a quarter circle ACD. BD is a straight line. Find the area of the shaded part. Take $\pi = 3.14$.

Do not write in this space



Ans: _____ cm^2

For questions 6 to 17, show your working clearly in the space provided for each question and write the answers in the spaces provided. The number of marks available is shown in the brackets [ ] at the end of each question or part-question.

(45 marks)

Do not write in this space.

6 Jimmy can paint a house in 10 days while Tom can paint the same house in 20 days. Jimmy started painting alone for 4 days and Tom joined him to paint the house after that. How many days did it take for the house to be completely painted?

Ans: _____ [3]

Do not write in this space

7 36 workers were supposed to pack an equal number of boxes of oranges each. However, 3 workers fell sick and did not report for work. As a result, the rest of the workers had to pack n more boxes of oranges each. Find the total number of boxes of oranges that were packed in terms of n.

Ans: _____ [3]

8 There were 16 more white buttons than red buttons in a bag. Miss Quek removed 22 white buttons and replaced them with 22 red buttons. After this, there were three times as many red buttons as white buttons in the bag. What was the total number of buttons in the bag in the end?

Ans: _____ [3]

9 At 3.30 p.m., Mr Rahim drove from Town P to Town Q at an average speed of 80 km/h. At 5 p.m., Mr Wong also left Town P for Town Q. He drove at a constant speed throughout the journey. At 7 p.m., both of them passed the petrol station which was 105 km away from Town Q

Do not write in this space

(a) What was the distance between Town P and the petrol station?

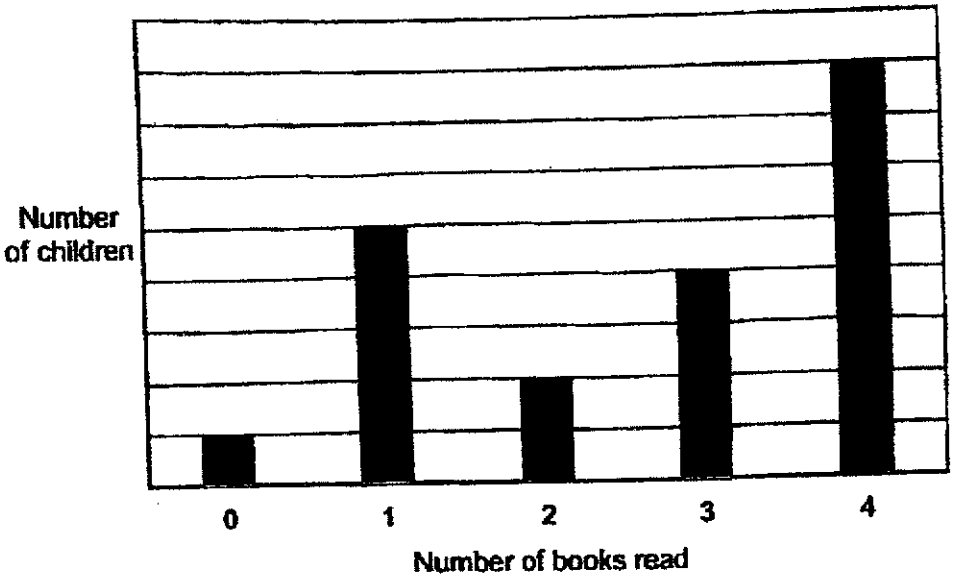
(b) At what time did Mr Wong reach Town Q?

Ans: (a) _____ [1]

(b) _____ [2]

10 A group of 120 children was asked about the number of books they read in April. The results of the survey are shown in the bar chart.

Do not write in this space



(a) Find the percentage of children who read exactly 4 books each.

(b) How many children read fewer than 2 books each?

Ans: (a) _____ [1]

(b) _____ [2]

11 Boxes A, B and C contain 9.06 kg of sand altogether.
$\frac{1}{6}$ of the sand in Box A is poured into Box B.
Then, $\frac{1}{3}$ of the sand in Box B is poured into Box C.
After that, the mass of the sand in each box was the same.

(a) Find the mass of the sand in each box in the end in grams.

(b) Find the mass of the sand in Box B at first.

Do not write in this space

Ans: (a) _____ [1]

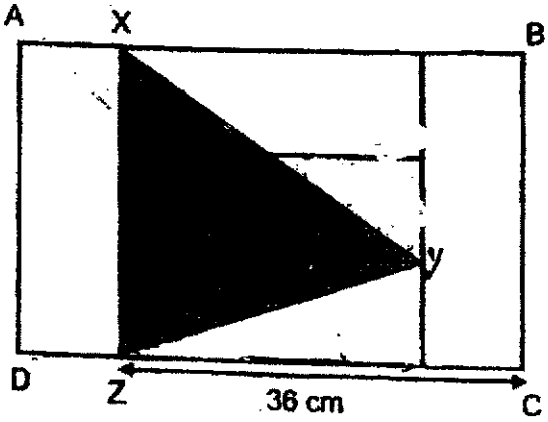
(b) _____ [3]

12 There were 25 more boys than girls in the hall at first. 32% of the boys and 20% of the girls left the hall. In the end, there were 7 more girls than boys remaining in the hall. How many boys were there in the hall in the end?

Do not write in this space

Ans: _____ [4]

13 Rectangle ABCD is made up of 5 identical rectangles.



(a) What is the perimeter of rectangle ABCD?

(b) What is the area of the shaded triangle XYZ?

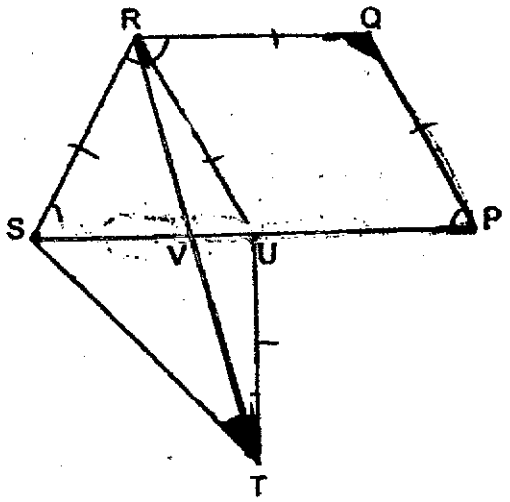
Do not write in this space

Ans: (a) _____ [2]

(b) _____ [2]

14 In the figure below, UPQR is a rhombus, URS is an equilateral triangle and SUT is a right-angled triangle. RVT and SUP are straight lines. RS = UT.

Do not write in this space



(a) Find ∠RQP.

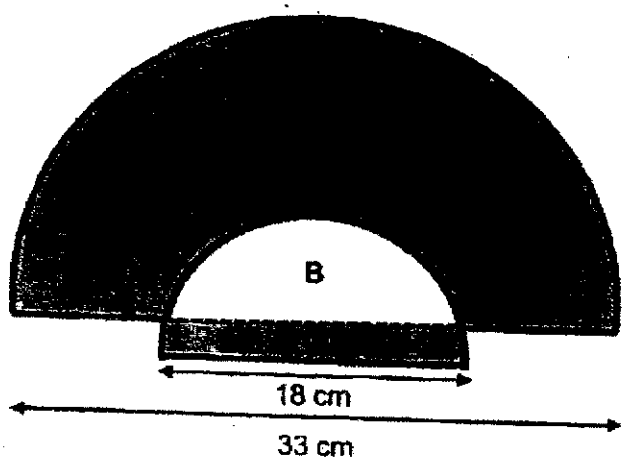
(b) Find ∠RTS.

Ans: (a) _____ [1]

(b) _____ [3]

15 The figure below shows 2 overlapping semicircles and two shaded areas, A and C. The diameter of the big semicircle is 33 cm and the diameter of the small semicircle is 18 cm.
The area of unshaded area B is 32π cm².
Use the calculator value of π to find the total shaded area of A and C.
Give your answer correct to one decimal place.

Do not write in this space



Ans: _____ [4]

Do not write
In this space

16 Mr Samy sold 4 times as many ipads as laptops and collected a total of $8400. The amount collected for all the ipads sold was $3480 more than the amount collected for all the laptops sold. Each laptop costs $325 more than each ipad.

(a) How much was collected from selling all the ipads?

(b) How many laptops did Mr Samy sell?

Ans: (a) _____ [2]

(b) _____ [3]

17 Bala had some red, yellow and blue beads. The ratio of the number of red beads to the number of yellow beads was 2 : 3. The ratio of the number of yellow beads to the number of blue beads was 4 : 1. He then bought some blue beads and gave 9 red beads to his brother. In the end, the ratio of the number of red beads to the total number of yellow and blue beads became 1 : 6 and the ratio of the number of yellow beads to the number of blue beads became 2 : 3.

Do not write in this space

(a) Find the ratio of the number of red beads to the number of yellow beads to the number of blue beads at first.

(b) How many blue beads did he buy?

Ans: (a) _____ [1]

(b) _____ [4]

END OF PAPER
CHECK YOUR WORK CAREFULLY !

ANSWER KEY

YEAR : 2021
LEVEL : PRIMARY 6
SCHOOL : AI TONG
SUBJECT : MATHEMATICS
TERM : MID-YEAR EXAM

PAPER 1
(BOOKLET A)

Q1	2	Q2	3	Q3	2	Q4	4	Q5	4
Q6	1	Q7	4	Q8	4	Q9	1	Q10	2
Q11	4	Q12	1	Q13	2	Q14	3	Q15	3

(BOOKLET B)

Q16	1012020
Q17	104°
Q18	$2 \div 7 = 0.29$
Q19	$100\% \div 2 = 50\%$ $50\% + 20\% = 70\%$
Q20	$\frac{6}{9} = \frac{2}{3}$
Q21	$\frac{30-20}{4} = \frac{10}{4}$ $=2\frac{2}{4}$ $= 2\frac{1}{2}$
Q22	$<$ ABC → 180° - 69° = 111° $<$ DEF → 180° - 29° - 111° = 40°
Q23	Diameter → 14 x 2 = 28 $\frac{3}{4}$ Cir → $\frac{3}{4}$ x π x 0 $= \frac{3}{4} \times \frac{22}{7} \times \frac{28}{1}$ =66 Perimeter → 66 + 14 + 14 = 94cm
Q24	3u →27 1u →27 ÷ 3 = 9 6u → 9 x 6 = 54

Q25

$< XAB \rightarrow 180° - 104° = 76°$

$< BAX \rightarrow 76° \div 2 = 38°$

$< WAB \rightarrow 104° + 38° = 142°$

Q26

30 x 20 x 35 = 21000

21000 ÷ 7 = 3000

3000 x 3 = 9000

9000cm3 = 9000ml = 9L

Q27

4 x 4 = 16

$\frac{1}{16}$

A : EFGH

1 : 16

Q28

i) S=120km/h

D=50km

T=D÷5

$=\frac{50}{1} \div \frac{120}{1}$

$=\frac{50}{1} \times \frac{1}{120}$

$=\frac{5}{12}h$

ii) S=100km/h

D=50km

T=D÷5

$=\frac{50}{1} \div \frac{100}{1}$

$=\frac{50}{1} \times \frac{1}{100}$

$=\frac{1}{2}h$

iii) 60 ÷ 12 =5

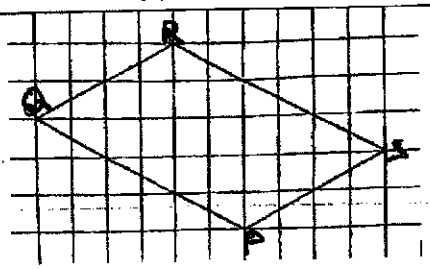
5 x 5 = 25

$\frac{5}{12}h$ = 25min

$\frac{1}{2}h$ = 30min

30min – 25min = 5min

Q29



Q30	Statement	True	False	Not possible to tell
	All the women are lighter than the men.			√
	The average mass of all the adults is more than 75kg.		√	

PAPER 2

Q1	100% + 10% = 110% 110% → 3520 1% → 3520 ÷ 110 = 32 100% → 32 x 100 = 3200
Q2	<u>Small semicircle x2</u> D → 5 Cir → π x D = π x 5 = 5 π <u>Big semicircle</u> D → 5 + 5 = 10 $\frac{1}{2}$ cir → $\frac{1}{2}$ x π x D =$\frac{1}{2}$ x π x $\frac{1}{10}$ =5 π Perimeter → 5 π + 5 π = 10 π cm
Q3	$210 ÷ 30 = $7 $7 x 5 = $35 12u = 5u + 35 12u – 5u = 7u 7u → $35 1u → $35 ÷ 7 = $5 30u → $5 x 30 = $150
Q4	21 ÷ 3 = 7 7 x P = 7p 7p + 4 = (7p + 4)
Q5	<u>Quadrant</u> R → 20cm

	$\frac{1}{4}$ A → $\frac{1}{4}$ x π x R x R = $\frac{1}{4}$ x 3.14 x 20 x 20 =314 Square 20 x 20 = 400 Arrow → 400 - 314 =86 Half arrow → 86 ÷ 2 = 43cm2
Q6	Jimmy 10 days → 1 house 1 day → $\frac{1}{10}$ house = $\frac{2}{20}$ house Tom 20 days → mouse 1 day → $\frac{1}{20}$ house Together 1 day → $\frac{2}{20}$ + $\frac{1}{20}$ = $\frac{2}{20}$ 4 days → $\frac{2}{20}$ x $\frac{4}{1}$ =$\frac{2}{5}$ =$\frac{4}{10}$ =$\frac{8}{20}$ 20 – 8 = 12 12 ÷ 3 = 4 4 + 4 = 8 days
Q7	36 – 3 = 33 33 x n = 33n 33n ÷ 3 = 11n 11n x 36 = 396n
Q8	22 – 16 = 6 6 + 16 + 6 = 28 3 – 1 = 2 2u → 28 1u → 28 ÷ 2 = 14

	4u → 14 x 4 = 56 buttons
Q9	a) S=80km/h T=$3\frac{1}{2}$ D=S x T =80 x $3\frac{1}{2}$ =280km b) 7.45pm
Q10	a) $\frac{8}{20}$ x 100 = 40% b) $20u$ → 120 $1u$ → 120 ÷ 2 = 6 $6u$ → 6 x 6 = 36 children
Q11	a) 9.06kg = 9060g 9060g ÷3 = 3020g b) $\frac{1}{6}$ A → 604g 3020g ÷ 2 = 1510g $\frac{1}{3}$ B → 1510g $\frac{3}{3}$ B → 1510g x 3 = 4530g 4530g – 604g = 3926g
Q12	25 – 8 = 17 5 x 4 = 20 20u = 17u + 17 + 7 20u – 17u = 3u 3u → 17 + 7 = 24 1u → 24 ÷3 = 8 17u → 8 x 17 = 136 136 + 17 = 153
Q13	a) 36 ÷ 4 = 9 9 x 3 = 27 36 + 9 = 45 45 + 27 = 72 72 x 2 = 144cm b) $\frac{1}{2}$ x 27 x 27 = 364.5cm2
Q14	< RUP → 180° - 60° = 120° < QPU → 180° - 120° = 60° < UST → (180° - 90°) ÷2 = 45° < UTV → (180° - 90° - 60°) ÷2 =30° ÷2 = 15°

	$< RTS \rightarrow 45° - 15° = 30°$ a) 120° b) 30°
Q15	<u>Big semicircle</u> $R \rightarrow 33 \div 2 = 16.5$ $\frac{1}{2} A \rightarrow \frac{1}{2} \times \pi \times R \times R$ $= \frac{1}{2} \times \pi \times 16.5 \times 16.5$ $= 136.125\ \pi$ <u>A</u> $136.125\ \pi - 32\ \pi = 104.125\ \pi$ <u>Small semicircle</u> $R \rightarrow 18 \div 2 = 9$ $\frac{1}{2} A \rightarrow \frac{1}{2} \times \pi \times R \times R$ $= \frac{1}{2} \times \pi \times 9 \times 9 = 40.5\ \pi$ <u>C</u> $40.5\ \pi - 32\ \pi = 8.5\ \pi$ Shaded area $\rightarrow 8.5\ \pi + 104.125\ \pi$ ≈ 353.8218 $\approx 353.8 cm^2$
Q16	a) \$8400 - \$3480 = \$4920 \$4920 ÷ 2 = \$2460 \$2460 + \$3480 = \$5940 b) \$5940 ÷ 4 = \$1485 \$2460 - \$1485 = \$975 \$975 ÷ \$325 = 3 laptops
Q17	a) R : Y : B 8 : 12 : 3 b) 8 – 5 = 3 3u → 9 1u → 9 ÷ 3 = 3 18 – 3 = 15 15u → 3 x 15 = 45 blue beads

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END