NANYANG PRIMARY SCHOOL

END-OF-YEAR EXAMINATION
2022

PRIMARY 5

MATHEMATICS
PAPER 1
(BOOKLET A)

Total Duration for Booklets A and B: 1 hour

Additional materials: Optical Answer Sheet (OAS)

INSTRUCTIONS TO PUPILS

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

Name: _____ (   )

Class: Primary 5 (   )

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) and shade your answer on the Optical Answer
Sheet.   (20 marks)

1   In 742.896, which digit is in the hundredths place?

       (1)   6

       (2)   7

       (3)   8

       (4)   9

2   Which of the following is the same as 20 ml?

       (1)   2 l

       (2)   0.2 l

       (3)   0.02 l

       (4)   0.002 l

3   There are 30 chocolate cookies, 18 raisin cookies and 48 butter cookies. What is the ratio of the number of chocolate cookies to the number of raisin cookies to the number of butter cookies?

(1)   5 : 3 : 8

(2)   3 : 5 : 8

(3)   5 : 3 : 6

(4)   6 : 3 : 8

4   Sindri worked for 30 hours. He was paid $600. How much was he paid per hour?

(1) $5

(2) $2

(3) $20

(4) $50

5   Shahul had $2500. He spent $2000. What percentage of his money
    did he spend?

    (1)   20%

    (2)   25%

    (3)   80%

    (4)   125%

6   There were 960 people in a concert. 60% of them were adults. How
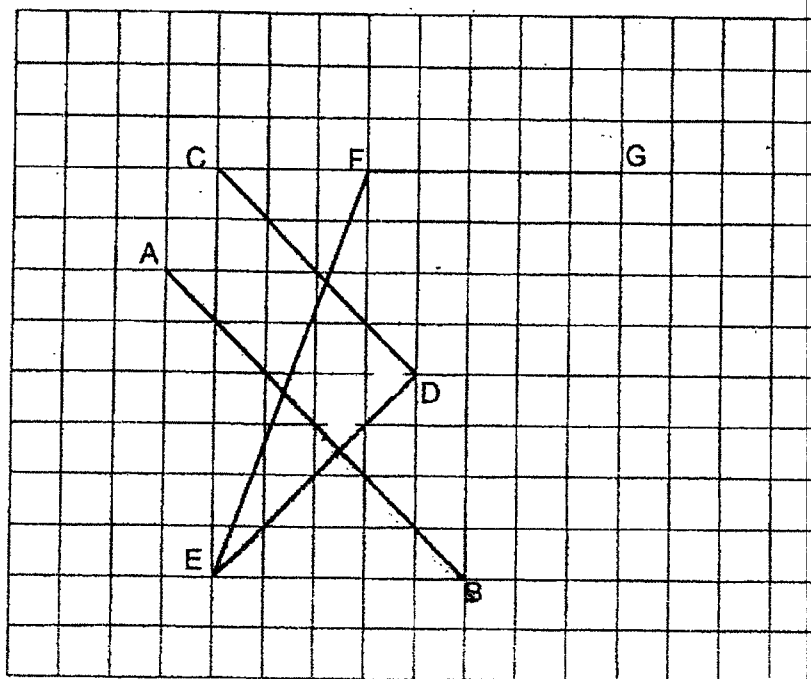   many adults were there at the concert?
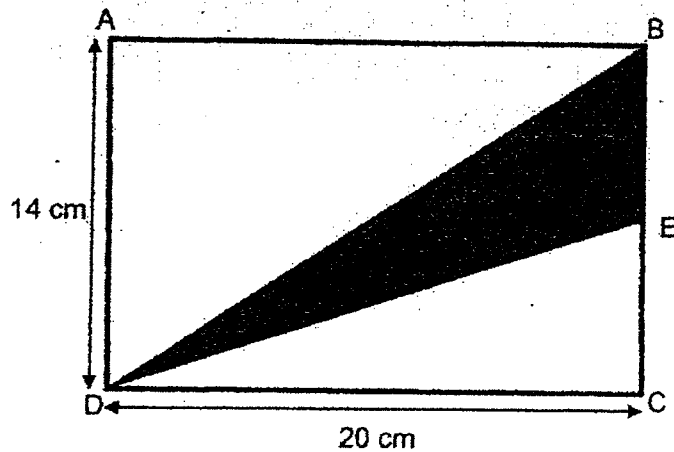
    (1)   384

    (2)   576

    (3)   588

    (4)   768

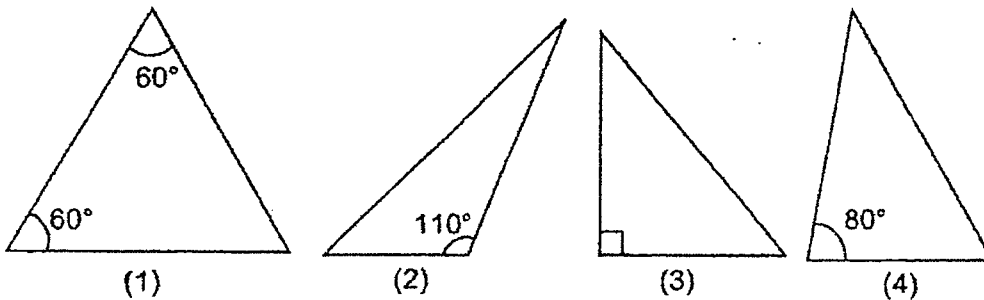7   Which line in the square grid is perpendicular to AB?

(1)   DE

(2)   EF

(3)   CD

(4)   FG

4

8 In the figure below, ABCD is a rectangle. E is a point on BC. BE is half the length of BC, DC = 20 cm and AD = 14 cm. Find the area of triangle BDE.
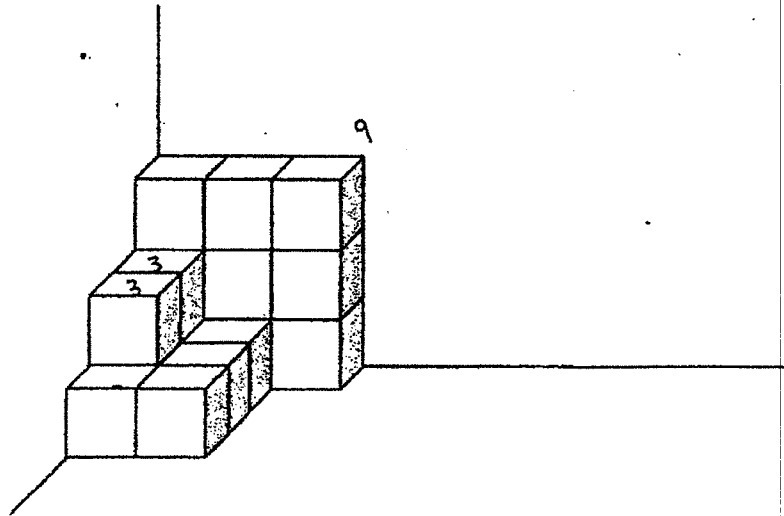

(1) 35 cm²

(2) 70 cm²

(3) 140 cm²

(4) 280 cm²

9 Which of the following triangles is an equilateral triangle?

10 The solid below is formed by unit cubes. How many unit cubes are there?

(1)   12

(2)   17

(3)   18

(4)   26

11 Which one of the following fractions is closest to 2?

(1) $2\dfrac{2}{3}$

(2) $2\dfrac{1}{4}$

(3) $1\dfrac{1}{6}$

(4) $1\dfrac{7}{8}$

12   Jasmine scored an average of 70 marks for a Mathematics test and a Science test. She scored 68 marks for the Mathematics test. How many marks did she score for the Science test?

(1)   66

(2)   69

(3)   72

(4)   138

13   Mandy had 408 ℓ of milk. She poured all the milk into 400 bottles. Each bottle contained the same amount of milk. How many litres of milk did each bottle contain?

(1)   1.02

(2)   1.2

(3)   10.2

(4)   12

14 Noah bought $\frac{7}{8}$ kg of grapes. He ate $\frac{1}{3}$ of it. How many kilograms of grapes had he left?

(1) $\frac{5}{12}$

(2) $\frac{7}{12}$

(3) $\frac{7}{24}$

(4) $\frac{13}{24}$

15 Mrs Tan cooks 0.35 kg of rice every day. How many kilograms of rice does she cook in 60 days?

(1) 2.1

(2) 3.5

(3) 18

(4) 21

NANYANG PRIMARY SCHOOL

END-OF-YEAR EXAMINATION
2022

PRIMARY 5

MATHEMATICS
PAPER 1
(BOOKLET B)

Total Duration for Booklets A and B: 1 hour

INSTRUCTIONS TO PUPILS

1. Do not turn over this page until you are told to do so.
2. Follow all instructions carefully.
3. Answer all questions.
4. Write your answers in this booklet.
5. The use of calculators is **NOT** allowed.

Name: _____ (   )

Class: Primary 5 (   )

Booklet B	/ 25

Please sign and return the examination paper the next day. Any queries should be raised at the same time when returning paper.

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 Find the value of $14 + (30 - 18) \div 6 \times 2$.

Ans: _____

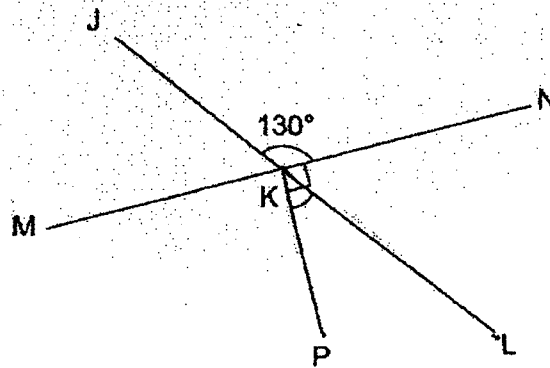**17** Find the value of $923 \div 4$. Express your answer as a decimal.

Ans: _____

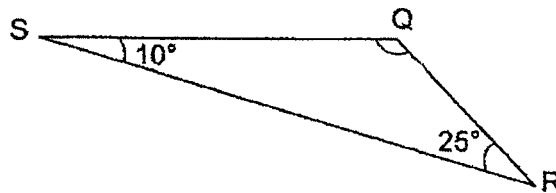**18** What is the missing number in the box?

$$4 : 7 = 32 : \boxed{}$$

Ans: _____

---

19   In the figure below, JKL and MKN are straight lines. ∠NKP = 90° and ∠JKN = 130°. Find ∠PKL.

Ans: _____ °

_____

20   In the figure below, QRS is a triangle. ∠QSR = 10° and ∠QRS = 25°. Find ∠SQR.

Ans: _____ °

_____

2

Questions **21** 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.   (20 marks)

---

21   In the figure below, WXYZ is a trapezium.   WX // ZY, ∠ZWY = 95° and ∠WZY = 65°.   Find ∠YWX.
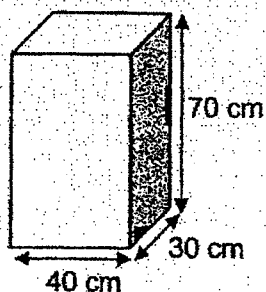
W
20°
95°
65°
X
Z
Y
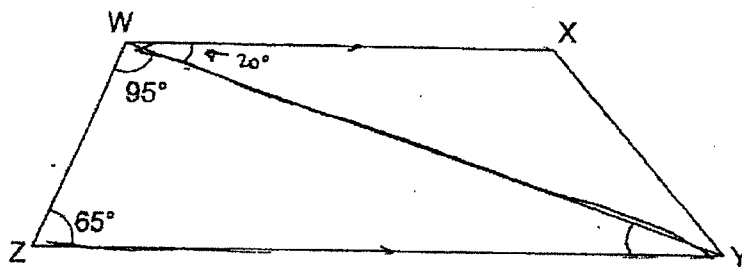
Ans: _____ °

---

22   Mrs Tan had some money at first.   She spent $\frac{2}{3}$ of her money on a watch and $\frac{1}{5}$ of her money on food.   She had $100 left.   How much did she have at first?

Ans: $_____

---

23   What is the volume of the cuboid shown below?

70 cm

30 cm

40 cm

Ans: _____ cm³

24   Find the average cost of the 3 items as shown below.

$36 $29.50 $42.50

Ans: $_____

4

25   The mass of a book is 3.08 kg.   Find the total mass of 6 such books.

Ans: _____ kg

---

26   The drink stall sold 2651 packet drinks in January.   The number of packet drinks sold in February was 44 more than the number of packet drinks sold in January.   How many packet drinks were sold in February? Round your answer to the nearest ten.
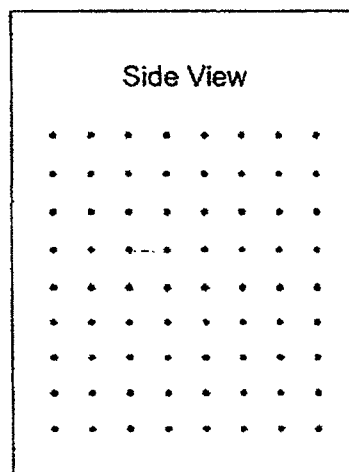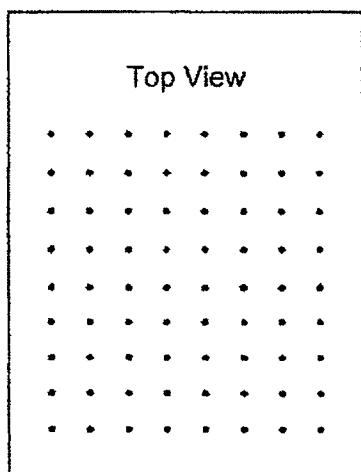
Ans: _____

---

27   Mrs Singh deposits $15 000 in the bank for one year.   The bank offers an interest of 4% per year.   How much will Mrs Singh have in her bank at the end of one year?
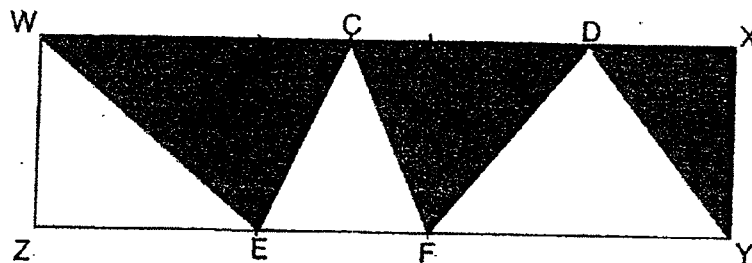
Ans: $_____

28 Nana stacked 10 unit cubes and glued them together to form the solid below.
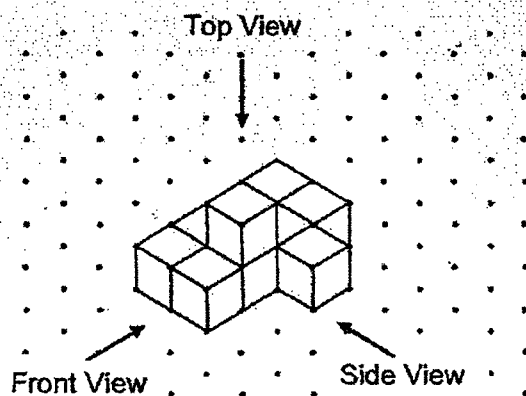
Draw the top view and the side view of the solid on the grids below.

29   In the figure below, WXYZ is a rectangle.   The area of rectangle WXYZ
      is 552 cm². C and D are points on WX.   E and F are points on ZY.
      Find the total area of the shaded parts.

                                                     Ans: _____ cm²

30   The average mass of Mei Mei and her cousins was 45 kg.   Mei Mei's
      mass was 53 kg.   The average mass of her cousins was 43 kg.   How
      many cousins did Mei Mei have?

                                                     Ans: _____

End of Paper

NANYANG PRIMARY SCHOOL

END-OF-YEAR EXAMINATION
2022

PRIMARY 5

MATHEMATICS
PAPER 2

Duration: 1 hour 30 minutes

INSTRUCTIONS TO PUPILS

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

Name: _____ ( )

Class: Primary 5 ( )

Parent's Signature: _____

Booklet A	/ 20
Booklet B	/ 25
Paper 2	/ 55
Total	/ 100

Please sign and return the examination paper the next day. Any queries should be raised at the same time when returning paper.

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 answers in the units stated.

(10 marks)

---

1 Sarah spent $1\frac{1}{4}$ h in the morning to complete her Science project. She spent $1\frac{7}{10}$ h in the afternoon to complete her Chinese project. What was the total amount of time she spent on completing both her Science and Chinese projects?

Ans: _____ h

---

2 The side of a square is $6\frac{2}{5}$ cm. What is the perimeter of the square?
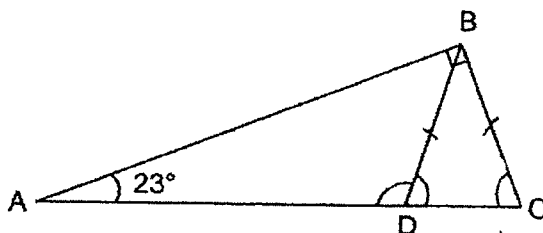
Ans: _____ cm

---

3   The table below shows the number of books sold in Everygreen bookshop from January to May.

January	February	March	April	May
88	75	82	69	71

What was the average number of books sold from January to May?

Ans: _____

---

4   In the figure below, ABC is a right-angled triangle.   D is a point on AC. ∠BAC = 23°, ∠ABC = 90° and BC = BD.   Find ∠BDA.


Ans: _____ °

5   Junie bought a book from ABC Bookshop. She had forgotten how much she paid for the book. However, she remembered that the book cost $30 when rounded to the nearest dollar.

She remembered the following about the cost of the book:

- It showed 2 decimal places.
- All the digits are different.
- The digits she saw in the tenths and hundredths places are 1, 4 or 5.

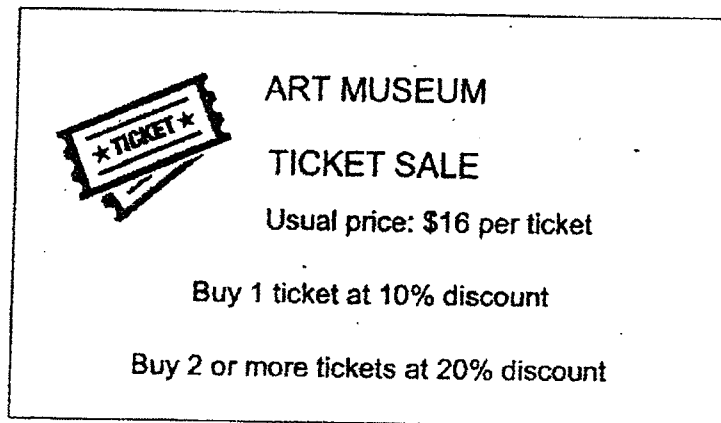How many possible costs of the book are there?
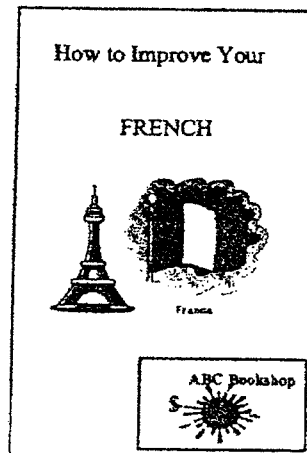
Ans: _____

For questions 6 to 17, 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. (45 marks)

6   Anna and James had the same amount of money at first. Anna bought some pens and had $4.30 left. James wanted to buy highlighters only. The number of highlighters that James wanted to buy was the same as the number of pens Anna bought. However, he was short of $8.70. Each pen cost $1.20 and each highlighter cost $2.50. How much money did Anna have at first?

Ans: _____ [3]

4

7   The Art Museum offers tickets on discount as shown in the flyer below.

ART MUSEUM

TICKET SALE

Usual price: $16 per ticket

Buy 1 ticket at 10% discount

Buy 2 or more tickets at 20% discount

(a) Mr Lim bought 1 ticket.   How much did he pay?

Ans: (a) _____ [1]

(b) Mr Tan bought 3 tickets.   What was the least amount of money he paid?

Ans: (b) _____ [2]

8   In the square grid below, JK and JN are straight lines.

(a)   JK and JN form two sides of a square JKLN.   Complete the
drawing of the square JKLN.   [1]

(b)   JK and JN form two sides of a trapezium JKMN.   KM is parallel to
JN.   Complete the drawing of trapezium JKMN such that the area
of JKMN is $1\frac{1}{2}$ times of the area of JKLN.   [2]
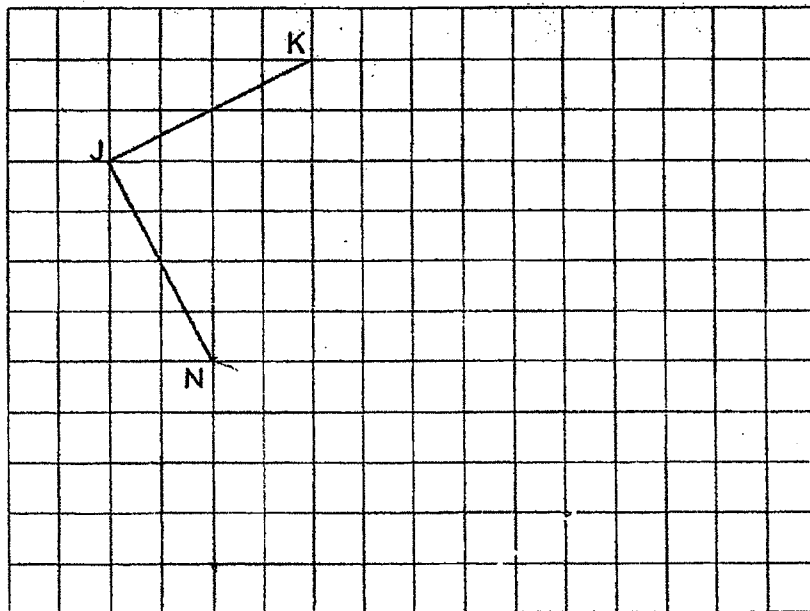
9   Chin Lee is 12 years older than Ming Shi.   In 5 years' time, the ratio of
Ming Shi's age to Chin Lee's age will be 5 : 9.   How old is Chin Lee
now?

Ans: _____ [3]

10 The average of 8 numbers is 45. When 2 of the numbers are removed, the average of the remaining numbers is 32. The difference between the 2 numbers that are removed is 6.

(a) Find the sum of the remaining numbers.

Ans: (a) _____ [1]

(b) What are the 2 numbers that are removed?

Ans: (b) _____ , _____ [2]

11 Farhana baked some cupcakes. $\frac{1}{5}$ of the cupcakes were chocolate cupcakes and the rest were banana cupcakes. She sold $\frac{4}{7}$ of the chocolate cupcakes and 51 banana cupcakes. She then had $\frac{2}{5}$ of the cupcakes left.
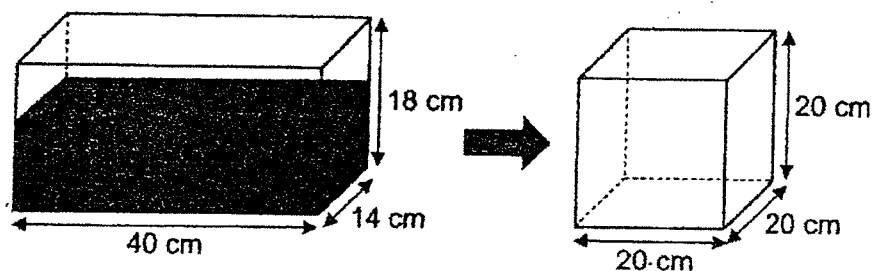
(a) How many chocolate cupcakes did she sell?

Ans: (a) _____ [2]

(b) How many cupcakes did she bake in all?

Ans: (b) _____ [2]

12   A tank measuring 40 cm by 14 cm by 18 cm was $\frac{3}{4}$-filled with water as shown below.   All the water in the tank was poured into a cubical container of sides 20 cm.

(a)   How much water was in the tank at first?

Ans: (a) _____ [2]

(b)   How many more litres of water are needed to fill the cubical container to the brim?

(b) _____ [2]

9

13   Kean Yew had 7200 shuttlecocks. He packed the shuttlecocks into as many bags of 7 shuttlecocks as possible and had some shuttlecocks left unpacked.   He sold all his shuttlecocks and received $3608.   Each bag of shuttlecocks was sold at $3.50.

(a) How many shuttlecocks were left unpacked?

Ans: (a) _____ [1]

(b) Each of the shuttlecocks left unpacked was sold at the same price. How much did each of the shuttlecocks left unpacked was sold at?

Ans: (b) _____ [3]

14   The figure below shows a right-angled triangle AFG and a square ABCD
     overlapping each other.   ADG is a straight line.   ∠AGF = 90°, DC = GF
     and EC = 7 cm.   The length of AB is twice the length of EC.
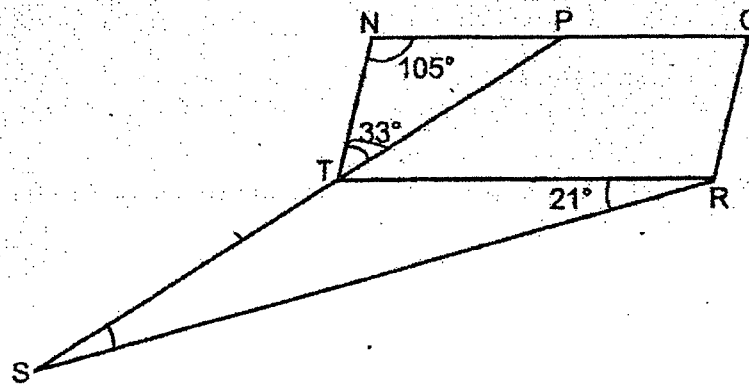   Triangle AFG has the same area as square ABCD.
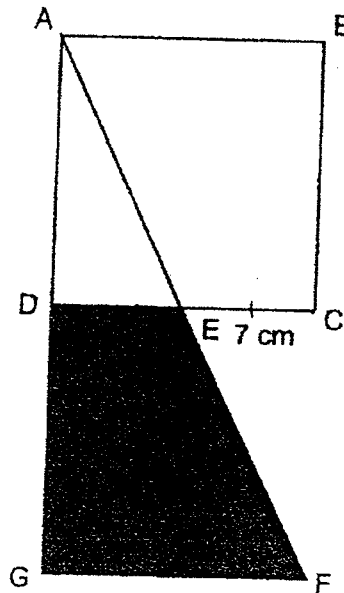
(a) What is the area of square ABCD?

Ans: (a) _____ [2]

(b) Find the shaded area DEFG.

Ans: (b)_____ [2]

11

15. In the figure below, NQRT is a parallelogram. P is a point on NQ and PTS is a straight line. ∠NTP = 33°, ∠PNT = 105° and ∠TRS = 21°.

(a) Find ∠RST.

Ans: (a) _____ [3]

(b) Circle the words that describe triangle RTS correctly in the following statement.

Triangle RTS (is / is not) an isosceles triangle because RT (is / is not) equal to ST.

[1]

16   Cindy had a piece of ribbon. She used $\frac{2}{7}$ of the ribbon to make 15 small identical bows and 7 large identical bows. The length of ribbon used for 3 large bows was the same as the length of ribbon used for 5 small bows.

(a) How many large bows can she make with the same length of ribbon used for 15 small bows?

Ans: (a) _____ [1]

(b) How many small bows can she make with $\frac{3}{10}$ of the remaining ribbon?

Ans: (b) _____ [4]

17   Hon Lee formed some figures using squares and circles as shown below.
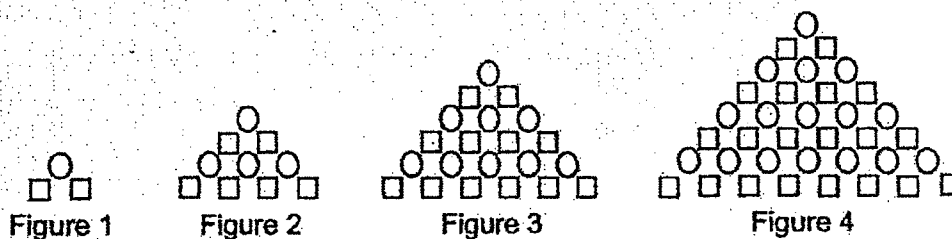

Figure 1   Figure 2   Figure 3   Figure 4

Figure	1	2	3	4
Number of circles	1	4	9	16
Number of squares	2	6	12	20
Total number of circles and squares	3	10	21	36

(a)   Find the number of circles in Figure 8.

Ans: (a) _____ [1]

(b) Which figure in the pattern has 930 squares?

(b) Figure _____ [2]

(c) Find the total number of circles and squares in Figure 15.

(c) _____ [2]

End of Paper

Nanyang Primary School

P5 2022
End of Year
SA2
Paper 1

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) and shade your answer on the Optical Answer Sheet. (20 marks)

1 In 742.896, which digit is in the hundredths place?

→ second decimal place

(1) 6

(2) 7

(3) 8

(4) 9

(4)

2 Which of the following is the same as 20 ml?

(1) 2 ℓ

(2) 0.2 ℓ

(3) 0.02 ℓ

(4) 0.002 ℓ

$1\ell = 1000$ ml

20 ml $= (20 \div 1000)\ell$

$= 0.02 \ell$

(3)

3 There are 30 chocolate cookies, 18 raisin cookies and 48 butter cookies. What is the ratio of the number of chocolate cookies to the number of raisin cookies to the number of butter cookies?

chocolate	:	raisin	:	butter
30	:	18	:	48
5	:	3	:	8

(1) 5:3:8

(2) 3:5:8

(3) 5:3:6

(4) 6:3:8

(1)

4 Sindri worked for 30 hours. He was paid $600. How much was he paid per hour?

(1) $5

(2) $2

(3) $20

(4) $50

$600 \div 30 = \$600 \div 10 \div 3$

$= \$60 \div 3$

$= \$20$

(3)

5 Shahul had $2500. He spent $2000. What percentage of his money did he spend?

(1) 20%

(2) 25%

(3) 80%

(4) 125%

$\dfrac{2000}{2500} = \dfrac{20}{25}$

$= \dfrac{80}{100}$

$= 80 \%$

(3)

6 There were 960 people in a concert. 60% of them were adults. How many adults were there at the concert?

(1) 384

(2) 576

(3) 588

(4) 768

$100\% \Rightarrow 960$

$1\% \rightarrow 960 \div 100$
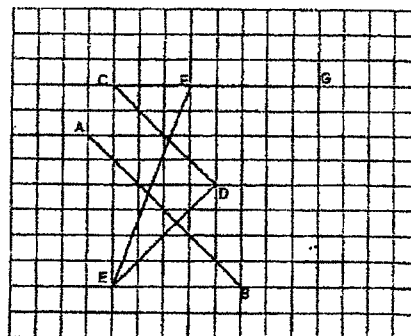
$= 9.6$

$60\% \rightarrow 9.6 \times 60$

$= 9.6 \times 10 \times 6$

$= 96 \times 6$

$= 576$ (2)

$\begin{array}{r} ^3 96 \\ \times 6 \\ \hline 576 \end{array}$

7 Which line in the square grid is perpendicular to AB?

(1) DE

(2) EF

(3) CD

(4) FG

(1)

P51

8 In the figure below, ABCD is a rectangle. E is a point on BC. BE is half the length of BC, DC = 20 cm and AD = 14 cm. Find the area of triangle BDE.
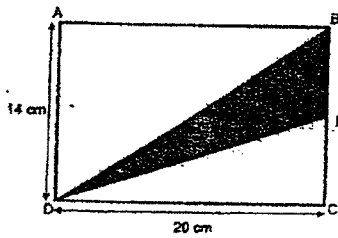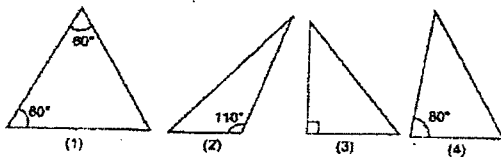

(1) 35 cm²

(2) 70 cm²

(3) 140 cm²

(4) 280 cm²

Length of ·BE = 14 ÷ 2
= 7

Area of △BDE = ½ × 20 × 7
= 10 × 7
= 70   (2)

9 Which of the following triangles is an equilateral triangle?

(1)

10 The solid below is formed by unit cubes. How many unit cubes are there?

(1) 12

(2) 17

(3) 18

(4) 26

9 + 3 + 5 = 17

(2)

11 Which one of the following fractions is closest to 2?

(1) $2\frac{2}{3}$ difference → $\frac{2}{3}$

(2) $2\frac{1}{4}$ difference → $\frac{1}{4}$

(3) $1\frac{1}{6}$ difference → $\frac{5}{6}$

(4) $1\frac{7}{8}$ difference → $\frac{1}{8}$

(4)

12 Jasmine scored an average of 70 marks for a Mathematics test and a Science test. She scored 68 marks for the Mathematics test. How many marks did she score for the Science test?

(1) 66

(2) 69

(3) 72

(4) 138

Total → 70 × 2
= 140

140 − 68 = 72

(3)

13 Mandy had 408 l of milk. She poured all the milk into 400 bottles. Each bottle contained the same amount of milk. How many litres of milk did each bottle contain?
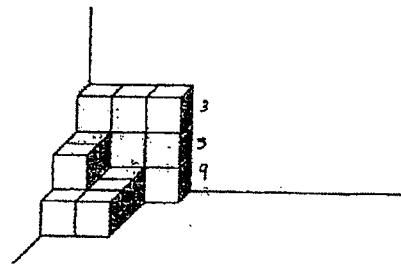
(1) 1.02

(2) 1.2

(3) 10.2

(4) 12

408 ÷ 400 = 408 ÷ 4 ÷ 100
= 102 ÷ 100
= 1.02

(1)

14 Noah bought $\frac{7}{8}$ kg of grapes. He ate $\frac{1}{3}$ of it. How many kilograms of grapes had he left?

$1 - \frac{1}{3} = \frac{2}{3}$

Left → $\frac{7}{8} \times \frac{2}{3}$

(1) $\frac{5}{12}$

(2) $\frac{7}{12}$

(3) $\frac{7}{24}$

(4) $\frac{13}{24}$

= $\frac{14}{24}$
= $\frac{7}{12}$

(2)

15 Mrs Tan cooks 0.35 kg of rice every day. How many kilograms of rice does she cook in 60 days?

(1) 2.1

(2) 3.5

(3) 18

(4) 21

0.35 × 60 = 0.35 × 10 × 6
= 3.5 × 6
= 21

(4)

3
3.5
× 6
21·0

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 Find the value of $14 + (30 - 18) \div 6 \times 2$.

$$14 + 12 \div 6 \times 2$$
$$= 14 + 2 \times 2$$
$$= 14 + 4$$
$$= 18 \ (ans)$$

Ans: _____18_____

17 Find the value of $923 \div 4$. Express your answer as a decimal.

$$\begin{array}{r} 230.75 \\ 4\overline{)923.00} \\ -8 \\ \hline 12 \\ -12 \\ \hline 03 \\ -0 \\ \hline 3.0 \\ -2.8 \\ \hline 20 \\ -20 \\ \hline 0 \end{array}$$

Ans: _____230.75_____

18 What is the missing number in the box?

$$4 : 7 = 32 : \square$$

$$32 \div 4 = 8$$
$$7 \times 8 = 56 \ (ans)$$

Ans: _____56_____

19 In the figure below, JKL and MKN are straight lines. $\angle NKP = 90°$ and $\angle JKN = 130°$. Find $\angle PKL$.

$$\angle NKL = 180° - 130°$$
$$= 50°$$
$$\angle PKL = 90° - 50°$$
$$= 40° \ (ans)$$

Ans: _____40_____

20 In the figure below, QRS is a triangle. $\angle QSR = 10°$ and $\angle QRS = 25°$. Find $\angle SQR$.

$$\angle SQR = 180° - 10° - 25°$$
$$= 170° - 25°$$
$$= 145° \ (ans)$$

Ans: _____145_____

Questions 21 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. (20 marks)

21 In the figure below, WXYZ is a trapezium. WX // ZY, $\angle ZWY = 95°$ and $\angle WZY = 65°$. Find $\angle YWX$.

$$95° + 65° = 160°$$
$$\angle YWX = 180° - 160°$$
$$= 20° \ (ans)$$

Ans: _____20_____

22 Mrs Tan had some money at first. She spent $\frac{2}{3}$ of her money on a watch and $\frac{1}{5}$ of her money on food. She had $100 left. How much did she have at first?

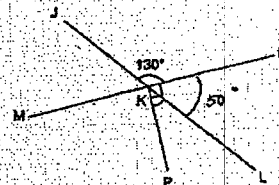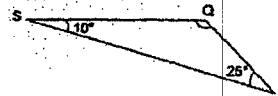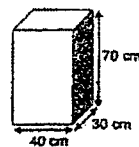$$1 - \frac{2}{3} - \frac{1}{5} = 1 - \frac{10}{15} - \frac{3}{15}$$
$$= \frac{2}{15}$$

$$\frac{2}{15} \to \$100$$
$$\frac{1}{15} \to \$100 \div 2$$
$$= \$50$$

$$\frac{15}{15} \to \$50 \times 15$$
$$= \$750 \ (ans)$$

Ans: $ _____750_____

23 What is the volume of the cuboid shown below?

70 cm
30 cm
40 cm

$$40 \times 30 \times 70 = 1200 \times 70$$
$$= 84 \ 000 \ cm^3 \ (ans)$$

Ans: _____84 000_____ cm³

24 Find the average cost of the 3 items as shown below.

$36 $29.50 $42.50

$$\begin{array}{r} 1 \\ 36 \\ 29.50 \\ +42.50 \\ \hline 108.00 \end{array}$$

$$\begin{array}{r} 36 \\ 3\overline{)108} \\ -9 \\ \hline 18 \\ -18 \\ \hline 0 \end{array}$$

Total $\to$ $36 + $29.50 + $42.50
$$= \$108$$

$$\$108 \div 3 = \$36 \ (ans)$$

Ans: $ _____36_____

25. The mass of a book is 3.08 kg. Find the total mass of 6 such books.

$$3.08 \times 6 = 18.48 \text{ (ans)}$$

```
  4
 3.08
×   6
─────
18.48
```

Ans: _18.48_ kg

26. The drink stall sold 2651 packet drinks in January. The number of packet drinks sold in February was 44 more than the number of packet drinks sold in January. How many packet drinks were sold in February? Round your answer to the nearest ten.

$$2651 + 44 = 2695$$

$$\approx 2700 \text{ (ans)}$$

Ans: _2700_

27. Mrs Singh deposits $15 000 in the bank for one year. The bank offers an interest of 4% per year. How much will Mrs Singh have in her bank at the end of one year?

$$100\% \rightarrow \$15\ 000$$
$$1\% \rightarrow \$15\ 000 \div 100$$
$$= \$150$$
$$4\% \rightarrow \$150 \times 4$$
$$= \$600$$
$$\$600 + \$15\ 000 = \$15\ 600 \text{ (ans)}$$

Ans: $ _15, 600_

6

28. Nana stacked 10 unit cubes and glued them together to form the solid below.

Draw the top view and the side view of the solid on the grids below.

29. In the figure below, WXYZ is a rectangle. The area of rectangle WXYZ is 552 cm². C and D are points on WX. E and F are points on ZY. Find the total area of the shaded parts.


```
 2 7 6
 5 5 2
   4
─────
  15
  14
 ───
  13
  12
 ───
   0
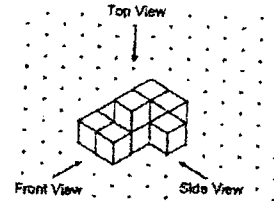```
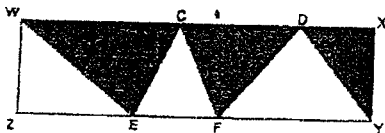
$$552 \div 2 = 276 \text{ (ans)}$$

Ans: _276_ cm²

30. The average mass of Mei Mei and her cousins was 45 kg. Mei Mei's mass was 63 kg. The average mass of her cousins was 43 kg. How many cousins did Mei Mei have?
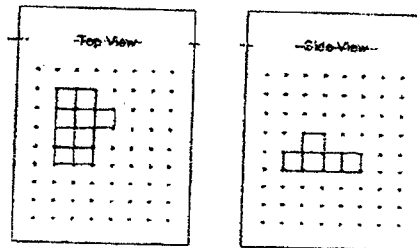
$$53 - 45 = 8$$
$$45 - 43 = 2$$
$$8 \div 2 = 4 \text{ (ans)}$$

Ans: _4_

End of Paper

Pg 4

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 answers in the units stated. (10 marks)

PS 2022
SA 2
Paper 2

1. Sarah spent $1\frac{1}{4}$ h in the morning to complete her Science project. She spent $1\frac{7}{10}$ h in the afternoon to complete her Chinese project. What was the total amount of time she spent on completing both her Science and Chinese projects?

$$1\frac{1}{4} + 1\frac{7}{10} = 2\frac{19}{20} \quad \text{(ans)}$$

Ans: ___$2\frac{19}{20}$___ h

2. The side of a square is $6\frac{2}{5}$ cm. What is the perimeter of the square?

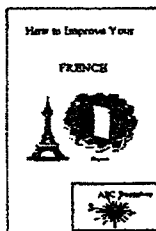$$6\frac{2}{5} \times 4 = 25\frac{3}{5} \quad \text{(ans)}$$

Ans: ___$25\frac{3}{5}$___ cm

3. The table below shows the number of books sold in Evergreen bookshop from January to May.

| January | February | March | April | May |
|---|---|---|---|---|
| 88 | 75 | 82 | 69 | 71 |

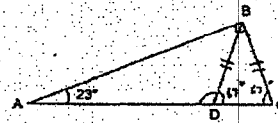What was the average number of books sold from January to May?

$$\text{Total} \rightarrow 88 + 75 + 82 + 69 + 71$$
$$= 385$$
$$385 \div 5 = 77 \quad \text{(ans)}$$

Ans: ___77___

4. In the figure below, ABC is a right-angled triangle. D is a point on AC. $\angle BAC = 23°$, $\angle ABC = 90°$ and BC = BD. Find $\angle BDA$.



$$\angle ACB = 180° - 90° - 23°$$
$$= 67°$$
$$= \angle BDC$$
$$\angle BDA = 180° - 67°$$
$$= 113° \quad \text{(ans)}$$

Ans: ___113___ °

5. Junie bought a book from ABC Bookshop. She had forgotten how much she paid for the book. However, she remembered that the book cost $30 when rounded to the nearest dollar.

She remembered the following about the cost of the book:

- It showed 2 decimal places.
- All the digits are different.
- The digits she saw in the tenths and hundredths places are 1, 4 or 5.

How many possible costs of the book are there?



Here to Improve Your
FRENCH

$$\begin{array}{ll} \$29.51 & \approx \$30 \\ \$29.54 & \approx \$30 \\ \$30.14 & \approx \$30 \\ \$30.15 & \approx \$30 \\ \$30.41 & \approx \$30 \\ \$30.45 & \approx \$30 \end{array}$$

Ans: ___6___

For questions 6 to 17, 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. (45 marks)

6. Anna and James had the same amount of money at first. Anna bought some pens and had $4.30 left. James wanted to buy highlighters only. The number of highlighters that James wanted to buy was the same as the number of pens Anna bought. However, he was short of $8.70. Each pen cost $1.20 and each highlighter cost $2.50. How much money did Anna have at first?

$$\$4.30 + \$8.70 = \$13$$
$\hookrightarrow$ difference between the cost of highlighters and pens

$$\$2.50 - \$1.20 = \$1.30$$
$\hookrightarrow$ difference between 1 highlighter and 1 pen

$$\$13 \div \$1.30 = 10$$
$$\$1.20 \times 10 = \$12$$
$$\$12 + \$4.30 = \$16.30 \quad \text{(ans)}$$

Ans: ___$16.30___ [3]

7 The Art Museum offers tickets on discount as shown in the flyer below.

**ART MUSEUM**
**TICKET SALE**
Usual price: $18 per ticket

Buy 1 ticket at 10% discount

Buy 2 or more tickets at 20% discount

(a) Mr Lim bought 1 ticket. How much did he pay?

$100 - 10 = 90$

$\frac{90}{100} \times \$16 = \$14.40$ (ans)

Ans: (a) ___$14.40___ [1]

(b) Mr Tan bought 3 tickets. What was the least amount of money he paid?

$100 - 20 = 80$

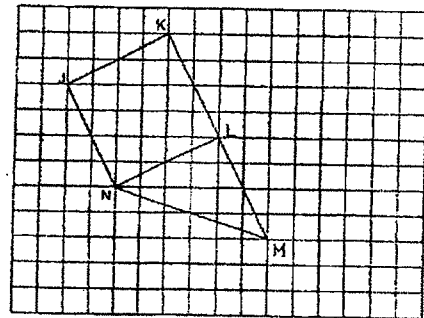$\frac{80}{100} \times \$16 = \$12.80$

$\$12.80 \times 3 = \$38.40$ (ans)

Ans: (b) ___$38.40___ [2]

5

8 In the square grid below, JK and JN are straight lines.

(a) JK and JN form two sides of a square JKLN. Complete the drawing of the square JKLN. [1]

(b) JK and JN form two sides of a trapezium JKMN. KM is parallel to JN. Complete the drawing of trapezium JKMN such that the area of JKMN is $1\frac{1}{2}$ times of the area of JKLN. [2]

9 Chin Lee is 12 years older than Ming Shi. In 5 years' time, the ratio of Ming Shi's age to Chin Lee's age will be $5 : 9$. How old is Chin Lee now?

$9 - 5 = 4$

$4$ units $= 12$

$1$ unit $= 12 \div 4$
$= 3$

$9$ units $= 3 \times 9$
$= 27$

$27 - 5 = 22$ (ans)

Ans: ___22___ [3]

6

10 The average of 8 numbers is 45. When 2 of the numbers are removed, the average of the remaining numbers is 32. The difference between the 2 numbers that are removed is 6.

(a) Find the sum of the remaining numbers.

$8 - 2 = 6$

$32 \times 6 = 192$ (ans)

Ans. (a) ___192___ [1]

(b) What are the 2 numbers that are removed?

$45 \times 8 = 360$

$360 - 192 = 168 \rightarrow$ sum of the 2 numbers removed.

$168 - 6 = 162$

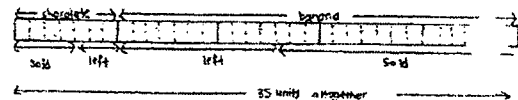$162 \div 2 = 81$ (ans)

$81 + 6 = 87$ (ans)

Ans. (b) ___81___ ___87___ [2]

11 Farhana baked some cupcakes. $\frac{1}{5}$ of the cupcakes were chocolate cupcakes and the rest were banana cupcakes. She sold $\frac{4}{7}$ of the chocolate cupcakes and 51 banana cupcakes. She then had $\frac{2}{5}$ of the cupcakes left.

(a) How many chocolate cupcakes did she sell?

$\frac{2}{5} = \frac{14}{35} \rightarrow$ total left

$14 - 3 = 11 \rightarrow$ bananas left

$7 \times 4 = 28$
$28 - 11 = 17$

$17$ units $= 51$
$1$ unit $= 51 \div 17$
$= 3$

$4$ units $= 3 \times 4$
$= 12$ (ans)
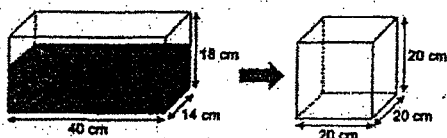
Ans: (a) ___12___ [2]

(b) How many cupcakes did she bake in all?

$7 \times 5 = 35$

$35$ units $= 3 \times 35$
$= 105$ (ans)

Ans. (b) ___105___ [2]

12. A tank measuring 40 cm by 14 cm by 18 cm was $\frac{3}{4}$ filled with water as shown below. All the water in the tank was poured into a cubical container of sides 20 cm.



(a) How much water was in the tank at first?

$$\frac{3}{4} \times 40 \times 14 \times 18 = 7560 \, cm^3 \ (ans)$$

Ans: (a) _____7560 cm³_____ [2]

(b) How many more litres of water are needed to fill the cubical container to the brim?

$$20 \times 20 \times 20 = 8000$$

$$8000 - 7560 = 440$$

$$440 \, cm^3 = 0.44 \, \ell \ (ans)$$

(b) _____0.44 ℓ_____ [2]

9

13. Kean Yew had 7200 shuttlecocks. He packed the shuttlecocks into as many bags of 7 shuttlecocks as possible and had some shuttlecocks left unpacked. He sold all his shuttlecocks and received $3608. Each bag of shuttlecocks was sold at $3.50.

(a) How many shuttlecocks were left unpacked?

$$7200 \div 7 = 1028 \, R \, 4$$

Ans: (a) _____4_____ [1]

(b) Each of the shuttlecocks left unpacked was sold at the same price. How much did each of the shuttlecocks left unpacked was sold at?

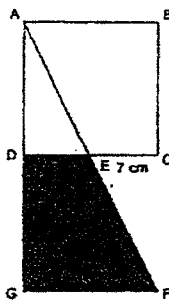$$1028 \times \$3.50 = \$3598$$

$$\$3608 - \$3598 = \$10$$

$$\$10 \div 4 = \$2.50 \ (ans)$$

Ans: (b) _____$2.50_____ [3]

10

14. The figure below shows a right-angled triangle AFG and a square ABCD overlapping each other. ADG is a straight line. ∠AGF = 90°, DC = GF and EC = 7 cm. The length of AB is twice the length of EC. Triangle AFG has the same area as square ABCD.



(a) What is the area of square ABCD?

$$7 \times 2 = 14$$

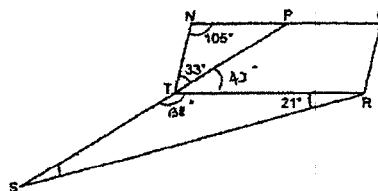$$14 \times 14 = 196 \, cm^2 \ (ans)$$

Ans: (a) _____196 cm²_____ [2]

(b) Find the shaded area DEFG.

$$Area \ of \ \triangle ADE = \frac{1}{2} \times 7 \times 14$$
$$= 49$$

$$196 - 49 = 147 \, cm^2 \ (ans)$$

Ans: (b) _____147 cm²_____ [2]

11

15. In the figure below, NQRT is a parallelogram. P is a point on NQ and PTS is a straight line. ∠NTP = 33°, ∠PNT = 105° and ∠TRS = 21°.



(a) Find ∠RST.

$$\angle PTR = 180° - 105° - 33°$$
$$= 42°$$

$$\angle STR = 180° - 42°$$
$$= 138°$$

$$\angle RST = 180° - 138° - 21°$$
$$= 21° \ (ans)$$

Ans: (a) _____21°_____ [3]

(b) Circle the words that describe triangle RTS correctly in the following statement.

Triangle RTS ( (is) / is not ) an isosceles triangle because RT ( (is) / is not ) equal to ST.

[1]

12

P. 7

ococ3002200220022002200220022002200220022002200220022002200220022002200220022002200220022002200220022002

**16** Cindy had a piece of ribbon. She used $\frac{2}{7}$ of the ribbon to make 15 small identical bows and 7 large identical bows. The length of ribbon used for 3 large bows was the same as the length of ribbon used for 5 small bows.
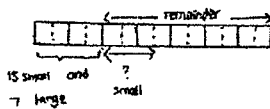
(a) How many large bows can she make with the same length of ribbon used for 15 small bows?

$$15 \div 5 = 3$$
$$3 \times 3 = 9 \quad (ans)$$

Ans: (a) ___9___ [1]

(b) How many small bows can she make with $\frac{3}{10}$ of the remaining ribbon?

$\frac{2}{7} = \frac{4}{14} \rightarrow$ 15 small + 7 large
$\rightarrow$ 9 large + 7 large
$\rightarrow$ 16 large

$\frac{1}{14} \rightarrow 16 \div 4$
$= 4$

$\frac{3}{14} \rightarrow 4 \times 3$
$= 12$ large
$\rightarrow (\frac{12}{3} \times 5)$ small
$\rightarrow 20$ small (ans)

Ans: (b) ___20___ [4]

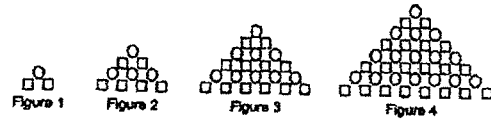**17** Hon Lee formed some figures using squares and circles as shown below.

Figure 1   Figure 2   Figure 3   Figure 4

| Figure | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| Number of circles | 1 $1 \times 1$ | 4 $2 \times 2$ | 9 $3 \times 3$ | 16 $4 \times 4$ |
| Number of squares | 2 $2 \times 1$ | 6 $3 \times 2$ | 12 $4 \times 3$ | 20 $5 \times 4$ |
| Total number of circles and squares | 3 | 10 | 21 | 36 |

(a) Find the number of circles in Figure 8.

$$8 \times 8 = 64 \quad (ans)$$

Ans: (a) ___64___ [1]

**17** (b) Which figure in the pattern has 930 squares?

$$30 \times 31 = 930$$
$$(ans)$$

(b) Figure ___30___ [2]

(c) Find the total number of circles and squares in Figure 15.

circle $\rightarrow 15 \times 15 = 225$
squares $\rightarrow 15 \times 16 = 240$
Total $\rightarrow 225 + 240 = 465$ (ans)

(c) ___465___ [2]

End of Paper

END