CA1

Rosyth School
Diagnostic Assessment 2021
Mathematics
Paper 1
Primary 6

Name: _____ Register No. _____

Class: Pr 6 _____

Date: _____ Parent's Signature: _____

Total Time for Booklets A and B : 1 hour

Booklet A

Instructions to Pupils:

1. Do not open this booklet until you are told to do so.
2. Follow all instructions carefully.
3. Shade your answers in the Optical Answer Sheet (OAS) provided.
4. You are not allowed to use a calculator.
5. Answer all questions.

Section	Maximum Mark	Marks Obtained
Paper 1 (Booklet A)	20	

* This booklet consists of 7 pages (including this cover page).
* This is a non-weighted assessment.

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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.

All diagrams in this paper are not drawn to scale unless stated otherwise.

(20 marks)

1 In digit 58.72, what does the digit 7 stand for?

(1) 7 ones
(2) 7 tens
(3) 7 tenths
(4) 7 hundredths

2 Arrange the following fractions from the largest to the smallest:

$$\frac{4}{5} \cdot \frac{1}{4} \cdot \frac{5}{9}$$

(1) $\frac{1}{4} \cdot \frac{4}{5} \cdot \frac{5}{9}$

(2) $\frac{4}{5} \cdot \frac{5}{9} \cdot \frac{1}{4}$

(3) $\frac{5}{9} \cdot \frac{1}{4} \cdot \frac{4}{5}$

(4) $\frac{5}{9} \cdot \frac{4}{5} \cdot \frac{1}{4}$

3 There were 34 901 visitors at the National Museum last year. Round off this number to the nearest thousand.

(1) 30 000
(2) 34 000
(3) 34 900
(4) 35 000

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4 Simplify 14b + 11 – 6b – 5 – 2.

(1) (8b + 4)

(2) (8b + 8)

(3) (20b + 4)

(4) (20b + 8)

5 In a class of 40 pupils, 16 pupils wear glasses. What percentage of the pupils wear glasses?

(1) 16%

(2) 24%

(3) 40%

(4) 60%

6 The table below shows James's marks for his English, Mother Tongue and Science tests. He scored an average of 78 marks for his 3 subjects.

Subject	Score
English	69
Mother Tongue	89
Science	?

What did James score for his Science?

(1) 76

(2) 78

(3) 158

(4) 234

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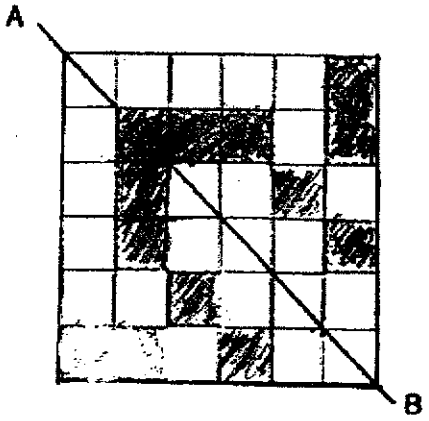
7 A carpenter can make 12 tables in 6 days.
How long will he take to make 168 tables?

(1) 14
(2) 28
(3) 42
(4) 84

8 Which of the following has the same value as 40 kg 35 g?

(1) 40 350 g
(2) 4035 g
(3) 40.35 kg
(4) 40.035 kg

9 The figure below is made up of squares. What is the least number of squares to be shaded to form a symmetric figure with AB as the line of symmetry?



(1) 1
(2) 2
(3) 3
(4) 4

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10 Ada baked a cake and gave $\frac{1}{3}$ of it to her neighbour. She cut the remainder equally into 5 slices. What fraction of the whole cake was each slice?

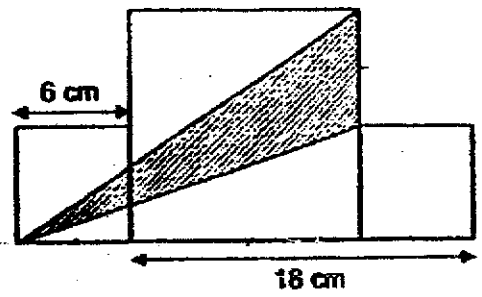
(1) $\frac{1}{5}$

(2) $\frac{3}{5}$

(3) $\frac{1}{15}$

(4) $\frac{2}{15}$

11 The figure below is made of two identical smaller squares and a bigger square. Find the area of the shaded triangle.



(1) 18 cm^2

(2) 36 cm^2

(3) 54 cm^2

(4) 84 cm^2

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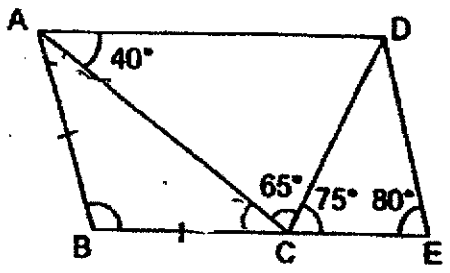
12 A repeated pattern is formed using the numbers 1 and 0.
The first 18 numbers are shown below.

1	1	0	1	0	1	1	1	0	1	0	1	1	1	0	1	0	1	...

What is the sum of the first 100 numbers?

(1) 64
(2) 65
(3) 67
(4) 68

13 In the figure below, ABCD is a trapezium. AB = BC and BCE is a straight line.
Find ∠ABC.



(1) 100°
(2) 105°
(3) 115°
(4) 130°

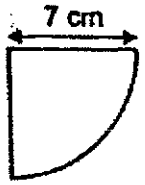
14 Mr Lim donated $800 to charity in April. In May, he donated 20% more than in April. In March, he donated 25% less than in April. How much money did he donate altogether?

(1) $2120
(2) $2360
(3) $2400
(4) $2760

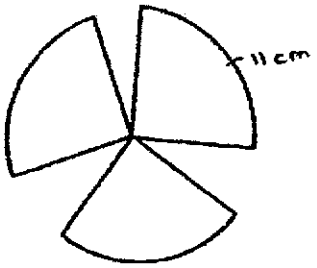
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15 A piece of wire is bent to form 1 quarter circle.



Find the total length of the wire used to form the figure below using the quarter circle. (Take $\pi = \frac{22}{7}$)



(1) 22 cm

(2) 36 cm

(3) 47 cm

(4) 75 cm

Go on to Booklet B

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Rosyth School
Diagnostic Assessment 2021
Mathematics
Paper 1
Primary 6

Name: _____ Register No. _____

Class: Pr 6 · _____

Date: _____ Parent's Signature: _____

Total Time for Booklets A and B : 1 hour

Booklet B

Instructions to Pupils:

1. Do not open this booklet until you are told to do so.
2. Follow all instructions carefully.
3. You are **not** allowed to use a calculator.
4. Write your answers in the booklet.
5. Answer all questions.

Section	Maximum Mark	Marks Obtained
Paper 1 (Booklet B)	25	

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* **This is a non-weighted assessment.**

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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.

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(5 marks)

16 Find the value of $\frac{5}{9} \times \frac{3}{6}$.

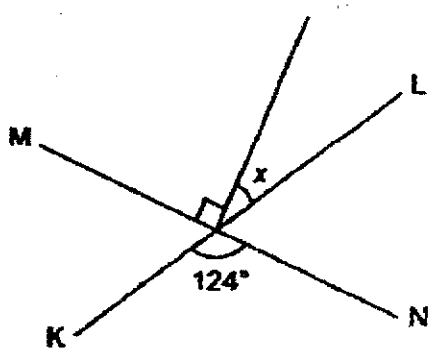
Give your answer as a fraction in the simplest form.

Ans : _____

17 Find the value of $24 - \frac{8k}{2}$ when $k = 5$.

Ans : _____

18 In the figure, KL and MN are straight lines. Find $\angle x$.



Ans : _____ °

(Go on to the next page)

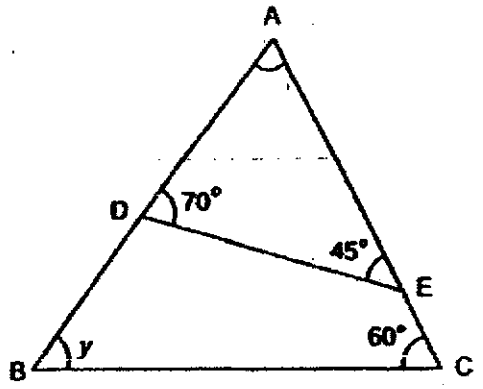
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19 Dan has $2x$ ribbons. Ben has thrice as many ribbons as Dan.
Jane has 4 fewer ribbons than Ben.
How many ribbons do they have altogether in terms of x?

Do not write in this space

Ans : _____

20 In the figure below, ABC and ADE are triangles. Find $\angle y$.



Ans : _____ °

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Questions 21 to 30 carry 2 marks each. Show your workings 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.

Do not write in this space

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(20 marks)

21 Find the value of $11 \times 7 + 10 - 6 + (15 \div 3)$.

Ans : _____

22 In class P5-A, the average number of books borrowed by all the 20 students was 4 books.

For each statement, put a tick (√) in the correct column.

Statement	True	False	Not possible to tell
(a) If each student borrowed 2 more books, the average number of books borrowed by the class will be 5.			
(b) There are an equal number of boys and girls in the class. If each boy borrowed 3 more books and each girl borrowed 1 more book, the new average of books borrowed by the class will be 6.			

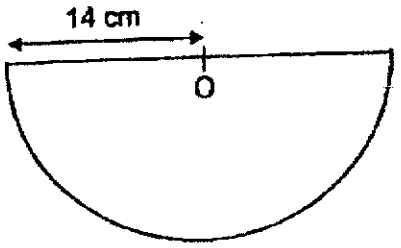
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23 The figure below is made up of 1 semi-circle with a radius 14 cm.

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



Ans : _____ cm

24 The postal charges for sending a parcel to Malaysia are as shown below.

Mass	Charges
First 5 kg	$25
Additional 1 kg or part thereof	$3

How much would Tim have to pay for sending a parcel weighing 8.4 kg?

Ans : $_____

(Go on to the next page)

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25 Eileen had some flour.

She used $\frac{1}{5}$ kg of the flour to make bread and $\frac{1}{4}$ of the flour to make cupcakes. She had 190 g of flour left. How many grams of flour did Eileen have at first?

Do not write in this space

Ans : _____ g

26 Jane baked q muffins. She sold 4 muffins and gave the remaining muffins to 5 of her neighbours.

(a) How many muffins did the 5 neighbours receive in terms of q?

(b) If Jane baked 29 muffins, how many muffins did each neighbor get?

(a) Ans : _____ pr

(b) Ans : _____ pr

(Go on to the next page)

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27 Daniel had $500. He spent 30% of his money on a pair of shoes and 30% of his remaining money on a bag. How much money did he spend altogether?

Do not write in this space

Ans : $ _____

28 The table below shows the admission fees to a museum for an adult and a child. There were 20 more children than adults at the museum. If a total of $1230 was collected, how many adults were at the museum?

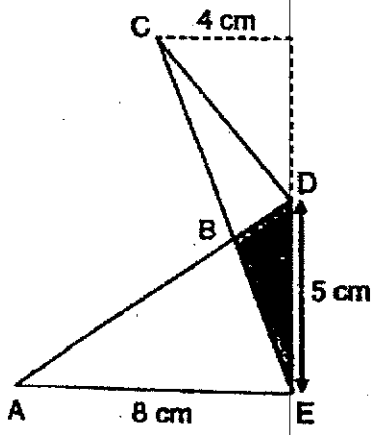
Adult	$21
Child	$9

Ans : _____

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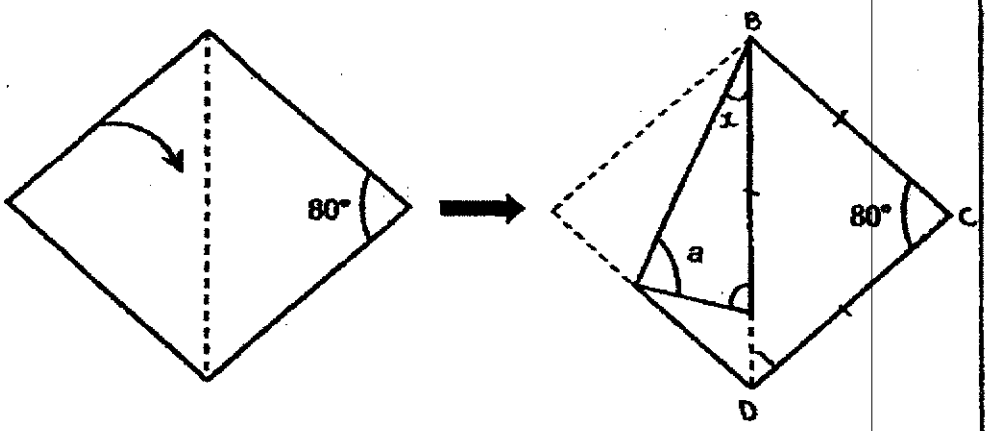
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29 Figure ABCDE has an area of 25 cm^2. ABD and CBE are straight lines. Find the total unshaded area.



Ans : _____ cm^2

30 A piece of paper in the shape of a rhombus is folded along the dotted line as shown. Find $\angle a$.



Ans : _____ °

End of paper
Have you checked your work?

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Rosyth School
Diagnostic Assessment 2021
Mathematics
Paper 2
Primary 6

Name: _____ Register No. _____

Class: Pr 6 - _____

Date: _____ Parent's Signature: _____

Time: 1 h 30 min

Instructions to Pupils:

1. Do not open this booklet until you are told to do so.
2. Follow all instructions carefully.
3. **Show your workings clearly** as marks are awarded for correct working.
4. Write your answers in this booklet.
5. You are allowed to use a calculator.
6. Answer all questions.

Questions	Maximum Mark	Marks Obtained
Q 1 to 5	10	
Q 6 to 17	45	

Section	Maximum Mark	Marks Obtained
Paper 1	45	
Paper 2	55	
Total	100	

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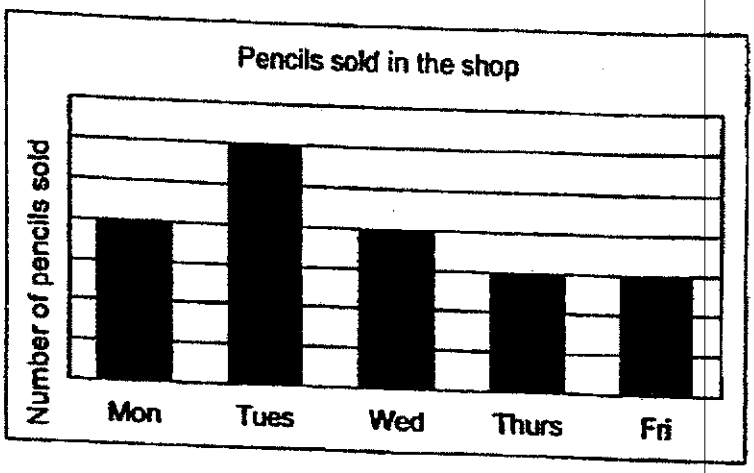
Questions 1 to 5 carry 2 marks each. Show your working clearly in the space provided for each question and write your answers in the spaces provided. For questions which require units, give your answers in the units stated.

(10 marks)

All diagrams in this paper are not drawn to scale unless stated otherwise.

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1. The bar graph shows the different number of pencils a shop sold over 5 days.



The day that had the most number of books sold was 96.
Find the average number of books sold over 5 days.

Ans : _____

2. Mr Tan bought *y* boxes of apples. Each box contained 12 apples. He threw away 5 rotten apples and repacked the remaining apples into bags of 4. Find the number of bags that he used in terms of *y*.

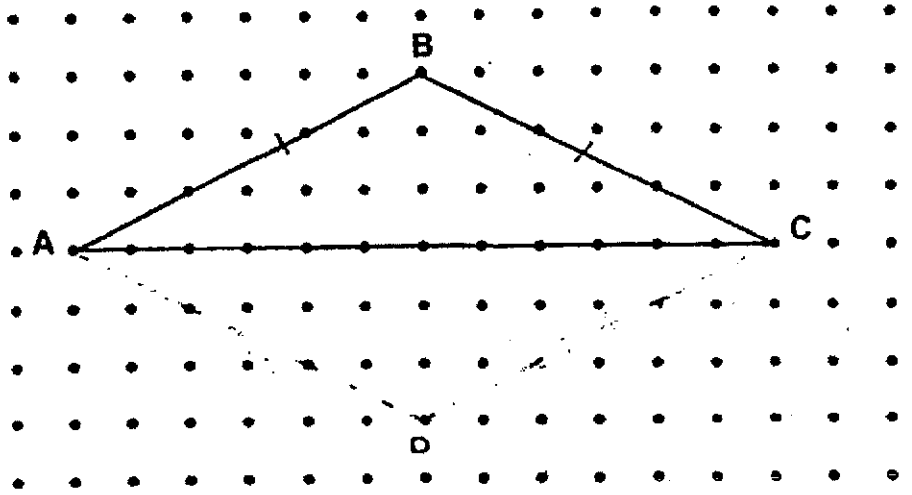
Ans : _____

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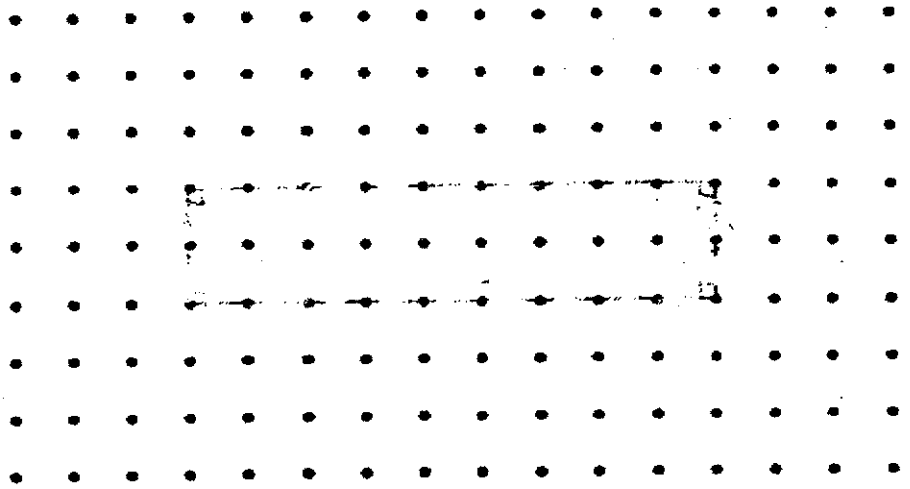
3. The figure below shows an isosceles triangle, ABC drawn on a square grid. AB = BC.

Do not write in this space

(a) ABCD is a rhombus with twice the area of triangle ABC.
On the grid below, draw and label rhombus ABCD by extending triangle ABC.



(b) A rectangle has the same area as triangle ABC.
On the grid below, draw the rectangle.



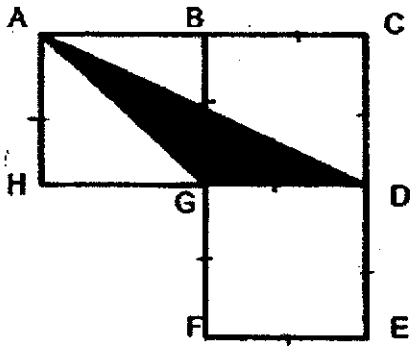
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4. A group of 5 boys booked a badminton court for 2 hours and took turns to play. At any time, there were 4 boys playing badminton. On average, how long did each boy play?
Give your answer in hours and minutes.

Do not write in this space

Ans : _____ h _____ min

5. ABGH and BCEF are rectangles. The area of triangle ADG is 32 cm^2 and BG = GD = GF. Find the area of rectangle BCEF.



Ans : _____ cm^2

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For Questions 6 to 17, show your working clearly in the space provided for each question 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. For questions which require units, give your answers in the units stated.

(45 marks)

All diagrams in this paper are not drawn to scale unless stated otherwise.

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6. Four friends, Ahmad, Ben, Carol and Devi donated money for a charity. Ahmad and Ben donated a total of $96. Together, Ben, Carol and Devi donated a total of $132. The total amount of money donated by all 4 friends is 5 times the amount that Ben donated.

How much money did Carol and Devi donate in total?

Ans : _____ [3]

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7. Ahmad is w years old this year. Jane is 3 times as old as Ahmad. Sarah is 5 years older than Jane.

a) What is their total age in 2 years' time?
Express your answer in terms of w.

b) In 2 years' time, find their total age when $w = 2$.

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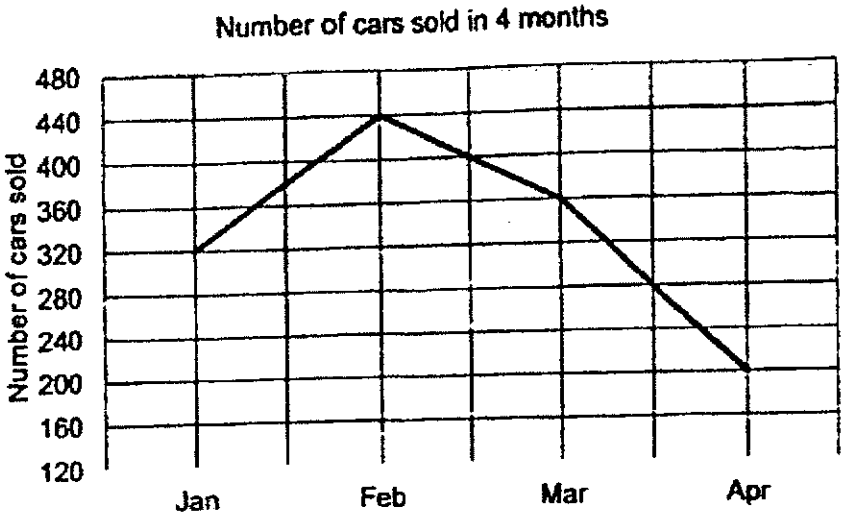
Ans : a)_____ [2]

b)_____ [1]

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8. The line graph shows the number of cars sold by a shop at the end of each month.

Do not write in this space



(a) In which month was there the greatest decrease in the number of cars sold?

(b) What is the percentage change in the number of cars sold in February compared to January?

Ans : a)_____ [1]

b)_____ [2]

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9. Ken used $\frac{2}{5}$ of his blue ice-cream sticks to make a toy boat, $\frac{3}{8}$ of his red ice-cream sticks to make a toy car and $\frac{2}{3}$ of his green ice-cream sticks to make a toy plane. He used the same number of ice-cream sticks to make each of the toy models.

Do not write in this space

(a) What fraction of all his ice-cream sticks did he use?
Give your answer in the simplest form.

(b) Ken had 1793 ice-cream sticks left, how many ice-cream sticks did he have in all?

Ans : a) _____ [1]

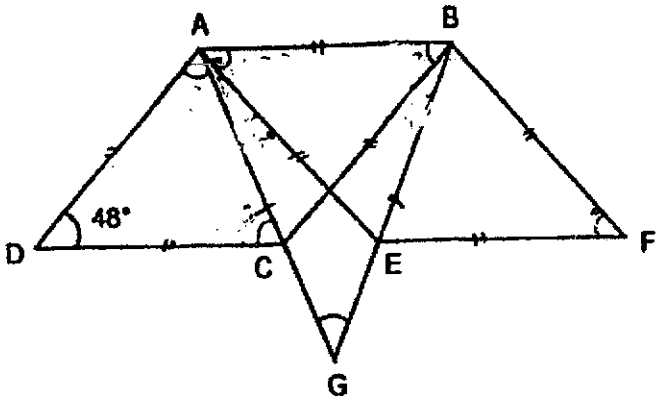
b) _____ [2]

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10. The figure below is made up of triangle ABG and two identical overlapping rhombuses, ABCD and ABFE. ∠ADC = 48°. Find

(a) ∠CAE

(b) ∠AGB



Do not write in this space

Ans : a) _____ [2]

b) _____ [1]

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11. In a library, if 14 girls leave the library, the ratio of the number of boys to the number of girls that remain in the library will be 2 : 1. If 14 boys leave the library, the ratio of the number of boys to the number of girls that remain in the library will be 3 : 5.

How many children were there in the library altogether?

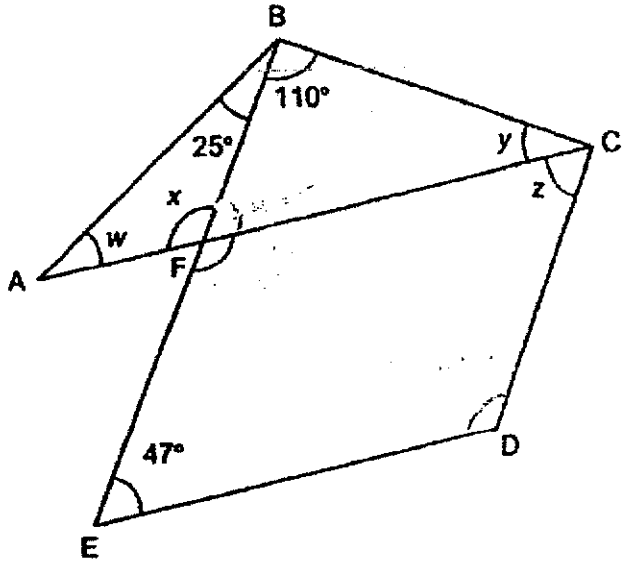
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Ans : _____ [3]

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12. CDEF is a parallelogram. BFE is a straight line.
$\angle ABF = 25°$, $\angle FBC = 110°$ and $\angle DEF = 47°$.

Do not write in this space



(a) Find $\angle EFC$.

(b) Find the sum of $\angle w$, $\angle x$, $\angle y$ and $\angle z$.

Ans : a) _____ [1]

b) _____ [3]

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13. Last Christmas, a shopkeeper decorated his shop with stars and bells. He used two strings of the same length. He cut the first string into equal parts of length ~~40 cm~~ 30 cm. For each equal part, he tied 5 stars as shown in Figure 1.

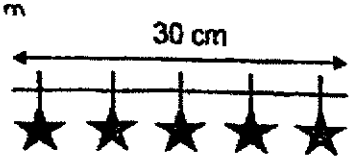


Figure 1

Then he cut the second string into equal parts of 80 cm. For each equal part, he tied 7 bells as shown in Figure 2.

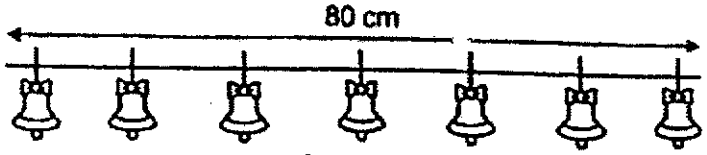


Figure 2

After the decorations are put up, he had 475 more stars than bells. How many stars did he use?

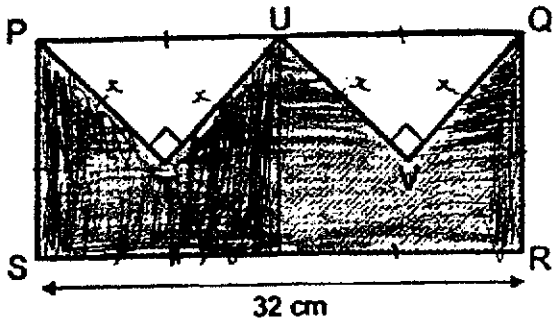
Ans : _____ [4]

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14. In the figure below, PQRS is a rectangle. PQ is twice the length of PS. PTU and UVQ are right-angled isosceles triangles. The perimeter of the shaded part is 112 cm.

What is the ratio of the area of the unshaded part to the area of the shaded part? Give your answer in the simplest form.



Ans : _____ [4]

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15. Candy had three times as many 20-cent coins as 10-cent coins and twice as many 20-cent coins as 50-cent coins at first. She exchanged $\frac{1}{2}$ of her 20-cent coins for thirty 50-cent coins of the same value. Her parents then gave her another eighteen 20-cent coins.

(a) How many coins did she have in the end?

(b) How much money did she have in the end?

Do not write in this space

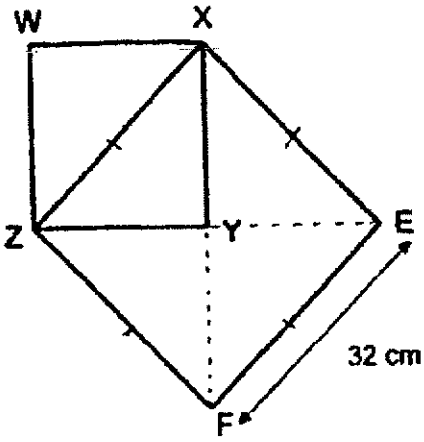
Ans : a) _____ [3]

b) _____ [2]

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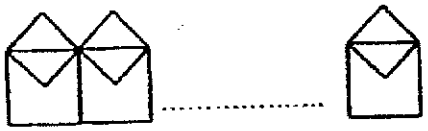
16. The pattern of a single fence wall WXEFZ is made using two squares XEFZ and WXYZ overlapping each other. Y is the center of the square XEFZ.

Do not write in this space



a) Find the ratio of the area of triangle XYZ to the area of the figure WXEFZ.

b) James installed the fence wall along the perimeter of his rectangular garden. The cost of installing the fence wall is $18 for every metre.



He paid $4500 altogether. What is the total area of the entire fence wall used for his garden?

Ans : a) _____ [1]

b) _____ [4]

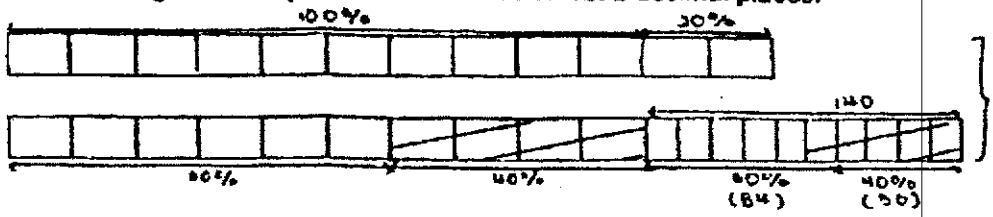
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17. In Week 1 of a running camp, the number of girls was 140 fewer than the number of boys. In Week 2, the number of boys decreased by 40% and the numbers of girls increased by 20%. There were 1074 children in Week 2 of the camp.

Do not write in this space

a) How many children were there in Week 1 of the running camp?

b) What percentage of the children in Week 2 of the running camp were girls? Give your answer to the nearest 2 decimal places.



Ans : a) _____ [3]

b) _____ [2]

End of paper
Have you checked your work?

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ANSWER KEY

YEAR : 2021
LEVEL : PRIMARY 6
SCHOOL : ROSYTH
SUBJECT : MATHEMATICS
TERM : DIAGNOSTIC ASSESSMENT (CA1)

BOOKLET A (PAPER 1)

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

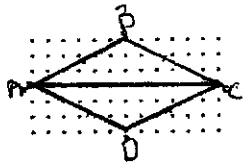
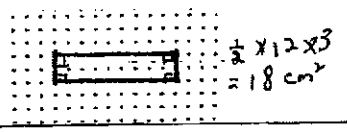
BOOKLET B (PAPER 1)

Q16	$\frac{5}{24}$	Q17	24- $\frac{8K}{2}$ =24- $\frac{5x8}{2}$ =24-$\frac{40}{2}$=24-20= 4
Q18	$< x \rightarrow 124° - 90° = 34°$	Q19	Dan → 2x Ben → 2x x3 = 6x Jane → 6x – 4 Total → 2x + 6x + 6x – 4 = 14x-4
Q20	$< EAD \rightarrow 180° - 45° - 70° = 65°$ $< y \rightarrow 180° - 65° - 60° = 55°$	Q21	11 x 7 + 10 – 6 + (15÷3) =11 x 7 + 10 – 6 + 5 = 77 + 10 – 6 + 5 =87 – 6 + 5 =81 + 5 = 86
Q22	a) False b) True	Q23	Arc → $\frac{1}{2}$ x $\frac{22}{7}$ x 14 x 2 = 44cm Peri → 44 + 14 + 14 = 72cm
Q24	8.4kg ≈9kg (roudup) 9kg = 5kg + (4x1kg) First 5kg → $25 4 x 1kg → 4 x $3 =$12 Total → $25 + $12 = $37	Q25	190g + $\frac{1}{5}$ kg = 390g 390g ÷ 3 x 4 = 520g
Q26	a) (9– 4)m b) 29 – 4 = 25 25 ÷ 5 = 5m	Q27	Shoes → 30% x $500 = $150 Remaining →$500 - $150 =$350 Bag → 30% x $350 = $105 Total → $105 + $150 = $255

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Q28	Extra → 20 x $9 = $180 ? set → $1230 - $180 = $1050 1 set → $21 + $9 = $30 No. of sets → $1050 ÷ $30 = 35	Q29	Δ ADE → $\frac{1}{2}$ x 5 x 8 = 20cm2 Δ CDE → $\frac{1}{2}$ x 4 x 5 = 10cm2 Shaded → 20 + 10 – 25 = 5 Unshaded → 25 – 5 = 20cm2
Q30	< CDA → (180 °- 80 °) x $\frac{1}{2}$ =500 < X → $\frac{1}{2}$ x 50° = 25° <y → 80° < a → 180° - 80° - 25° = 75°		

PAPER 2

Q1	Avg → $\frac{64+96+64+48+48}{5}$ = 64	Q2	Good apples → (y x 12)-5 =(12y – 5) No of bags → $\frac{12y-5}{4}$
Q3	a)  b)  	Q4	Total boys → 2hr x 4 players = 8hrs Each boy → $\frac{4}{5}$ x 8hrs =1hr 36min
Q5	BGCD → 32 x 2 = 64cm2 BCEF → 64 x 2 = 128cm2	Q6	A + B → $96 B + C + D → $132 ABCD : B 5 : 1 A + 2B + C + D → $228 6u → $228 1u → $228 ÷ 6 = $8 C + D → $132 - $38 = $94
Q7	a) Now A → W J → 3w S → 3W + 5 Two years later A → W + 2 J → 3W + 2 S → 3W + 7 Total → W + 3W + 3W + 2 + 2 + 7 = (7W + 11) yrs pld	Q8	a) April b) Diff → 440 – 320 =120 % ↑ → $\frac{120}{320}$ x 100% =37.5%

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	b) If W = 21 7W + 11 = 7 x 2 + 11 =25 yrs old		
Q9	a) $\frac{2}{5}B = \frac{3}{8}R = \frac{2}{3}G$ $\frac{6}{15}B = \frac{6}{16}R = \frac{6}{9}G$ Total → 15 + 16 + 9 = 40 units Used → 3 x 6 = 18 units Fraction → $\frac{18}{40} = \frac{9}{20}$ b) Left → 40 – 18 = 22 units 22 units → 1793 40 units → 1793 x $\frac{40}{22}$ =3260	Q10	a) $< DAC \rightarrow \frac{180° - 48°}{2} = 66°$ $< CAE \rightarrow 180° - 66° - 48° - 48° = 18°$ b) $< AGB \rightarrow 180° - (48 + 18°) \times 2 = 48°$
Q11	7 units → 14 24 + 7 = 31 31 units → 14 x $\frac{31}{7}$ = 62	Q12	a) $< EFC \rightarrow 180° - 47°$ $= 133°$ b) $< EDC \rightarrow 133°$ $< W + < X \rightarrow 180° - 25°$ $= 155°$ $sum \rightarrow 70° + 155°$ $=225°$
Q13	First common multiple of 30 & 80 → 240 Stars : 30cm – 5 240cm – 40 Beus : 80 cm – 7 240cm – 21 Small diff → 40 – 21 = 19 Big diff → 475 No of set → 475 ÷ 19 =25 set of 40 stars & 21 bells 1 set of 240 → 40 stars 25 sets of 240 → 40 x25 = 1000	Q14	2 unit → 32 cm 1 unit → 16 cm 4 x → (112 – 32 – 16 – 16)÷4 =12 Area of us → $\frac{1}{2}$ x 12 x 12 x 2 =144 Area of S → 16 x 32 – 144 = 368 US : S 144 : 368 9 : 23
Q15	a) 30 - \$0.50 → 30 x \$0.50 =\$15 3u \$0.20 → \$15 1u \$0.20 → \$15 ÷ 3 = \$5 No of coins in 1u→ \$5÷\$0.20 = 25 ITE (coins) → (3+2+3)x25+18+30=248	Q16	a) XYZ : WXEFZ 1 : 5 b) \$4500 ÷ \$18 = 250m =25000cm Area of ■ → 32 x 32 =1024 Area of Δ → 1024 ÷ 4 =256

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	b) Cost of \$0.20 → 3 x 25 x \$0.20 + 18 x \$0.20 =\$18.60 Cost of \$0.10 → 2 x 25 x \$0.10 = 5 Cost of \$0.50 → 3 x 25 x \$0.50 + 30 x \$0.50 =\$52.50 Total → \$18.60 + \$5 + \$52.30 = \$76.10		Whole area → 1024 + 256 = 1280 Pieces → 25000 ÷ 32 =781.25 781.25 x 1280 =1000000cm2
Q17	a) 180% → 1074 – 84 = 990 200% → 990 x $\frac{200}{180}$ = 1100 Week 1 → 1100 + 140 =1240 b) Week 2(girls) → 990 x $\frac{120}{180}$ =660 Week 2 → 1074 Percentage → $\frac{660}{1074}$x100% =61.4525% ≈ 61.45%		

END

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