Index No. | | | | | | – | |

Maha Bodhi School
2018 Preliminary Examination
Primary 6
Mathematics
Paper 1
(Booklet A)

Name : _____ ( )

Class : Primary 6 _____

Date : 7 August 2018

Total Duration for Booklets A and B: 1 hour

INSTRUCTIONS TO CANDIDATES:

1. Write your Index No. in the boxes at the top right hand corner.
2. Do not turn over this page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Shade your answers in the Optical Answer Sheet (OAS) provided.
6. The use of calculators is **NOT** allowed.

This booklet consists of **8** printed pages.

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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. (20 marks)
All diagrams are not drawn to scale.

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1. Which one of the following is equal to 60 thousands, 40 tens and 15 ones?

   (1) 604 015
   (2) 600 415
   (3) 60 415
   (4) 6415

2. How many eighths are there in $2\frac{3}{4}$?

   (1) 22
   (2) 20
   (3) 11
   (4) 10

3. 3040 g is the same as _____.

   (1) 3 kg 4 g
   (2) 3 kg 40 g
   (3) 30 kg 4 g
   (4) 30 kg 40 g

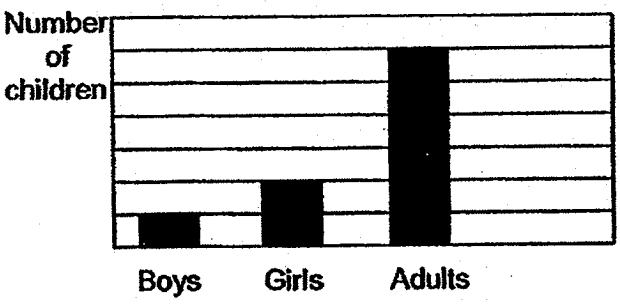
4. Melvin and Ramesh took part in a race. Melvin ran at 5 m/s and took 15 seconds. Ramesh ran at 3 m/s. What was the time taken by Ramesh?

   (1) 15 s
   (2) 25 s
   (3) 45 s
   (4) 75 s

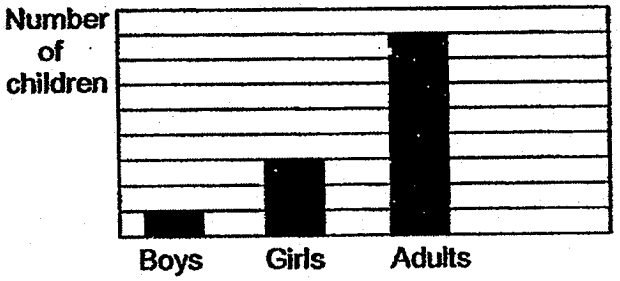
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5. There are twice as many boys as girls. There are twice as many adults as children. Which one of the following bar graphs shows the above information correctly?

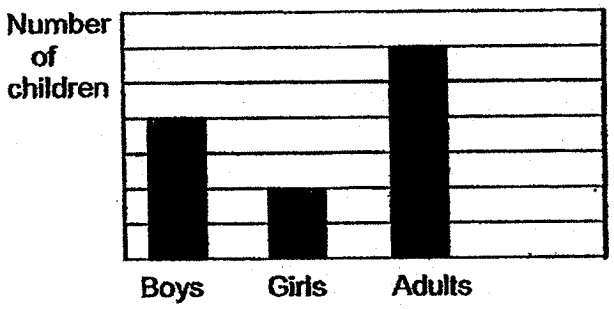
(1)



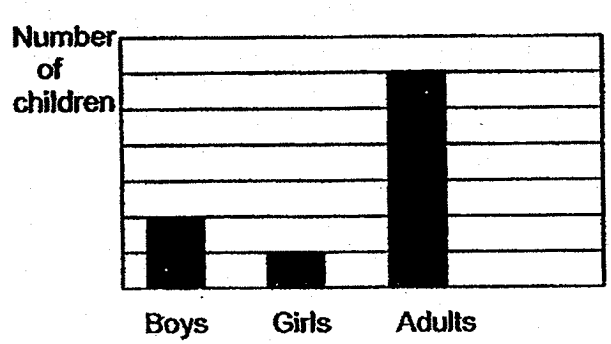
(2)



(3)

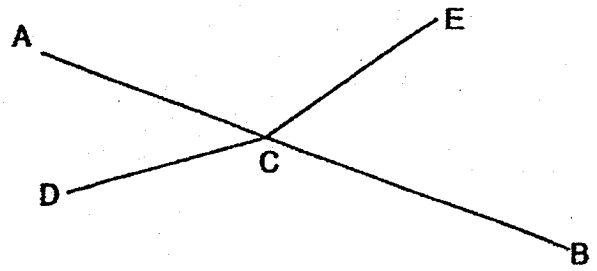


(4)



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6. In the diagram below, AB, CD and CE are straight lines.



Which one of the following statements about the angles is true?

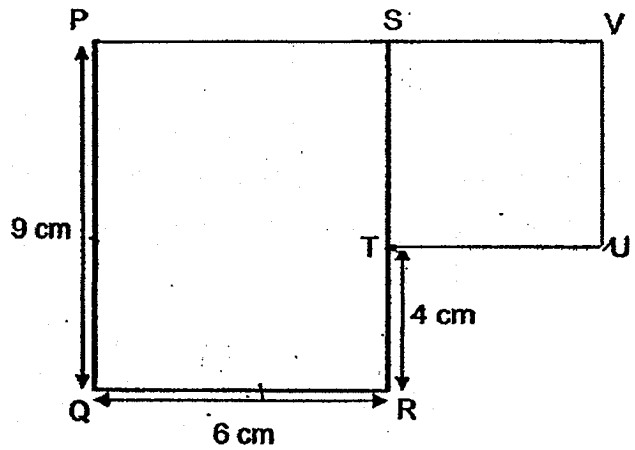
(1) $\angle ACD = \angle ECB$

(2) $\angle ACE = \angle BCD$

(3) $\angle ECB + \angle BCD = 180^\circ$

(4) $\angle ACE + \angle ECB = 180^\circ$

7. The figure below is made up of Rectangle PQRS and Square STUV.
What is the perimeter of the figure?



(1) 19 cm

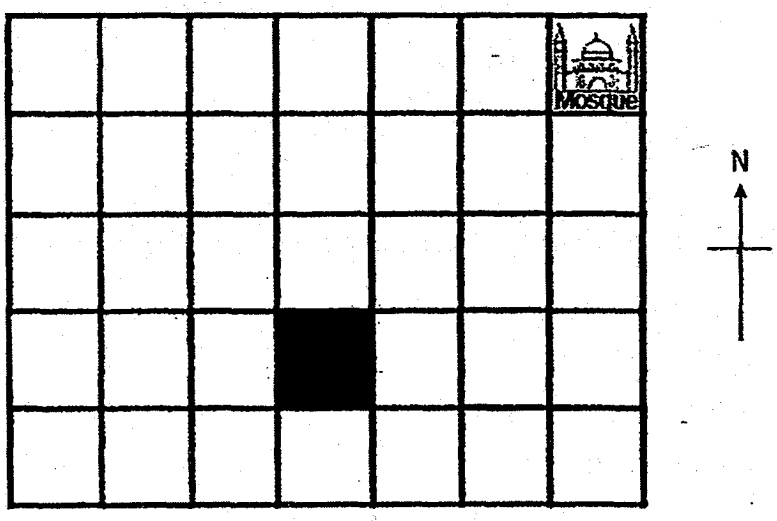
(2) 34 cm

(3) 40 cm

(4) 45 cm

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8. In the diagram below, the shaded square is _____ of the mosque.



(1) north-east
(2) north-west
(3) south-east
(4) south-west

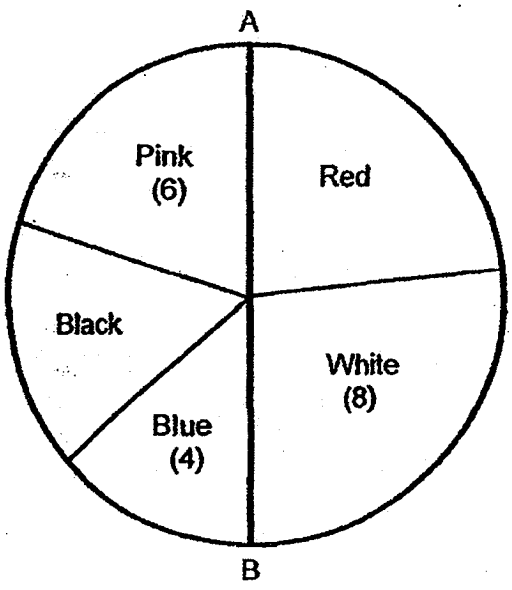
9. A car left Village A and travelled at an average speed of 70 km/h towards Town P. A coach left Village B and travelled at an average speed of 50 km/h towards Town Q. Village A and Village B are 10 km apart. How far apart are the two vehicles one hour after the drivers have started their journeys?



(1) 100 km
(2) 110 km
(3) 120 km
(4) 130 km

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10. 30 students in a class were asked to choose a colour for their class T-shirt. Their responses are shown in the pie-chart below. AB is a straight line.



How many more students chose Red than Black?

(1) 5

(2) 2

(3) 7

(4) 12

11. A solid cuboid of height 5 cm has a square base of side 4 cm. What is its volume?

(1) 20 cm^3

(2) 40 cm^3

(3) 80 cm^3

(4) 100 cm^3

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12. $48 \div \boxed{?} = 0.048 \times 100$

What is the missing number in the box?

(1) 1
(2) 10
(3) 100
(4) 1000

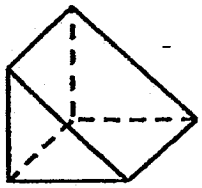
13. John spent \$50 of his allowance and saved the rest. When he increased his spending by 10%, his savings decreased by 20%. How much was his allowance?

(1) \$44
(2) \$55
(3) \$75
(4) \$80

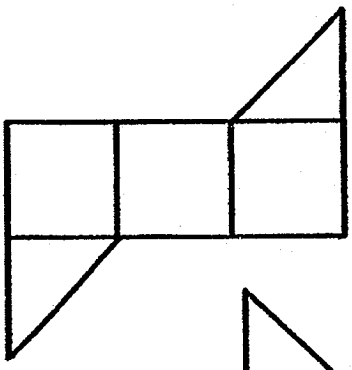
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14. A cube was cut into 2 halves to form the solid figure below.

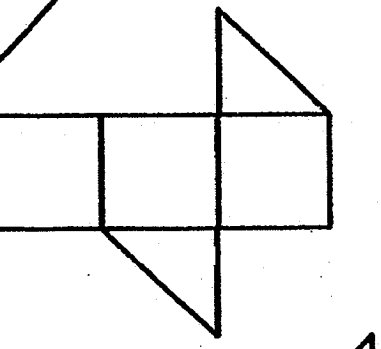
Which one of the following is a possible net of the solid figure?



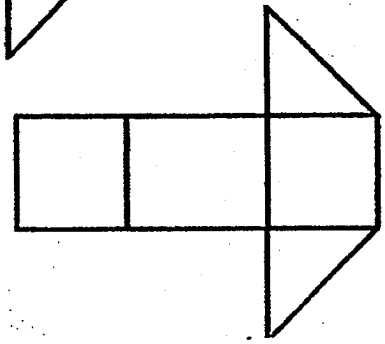
(1)



(2)



(3)

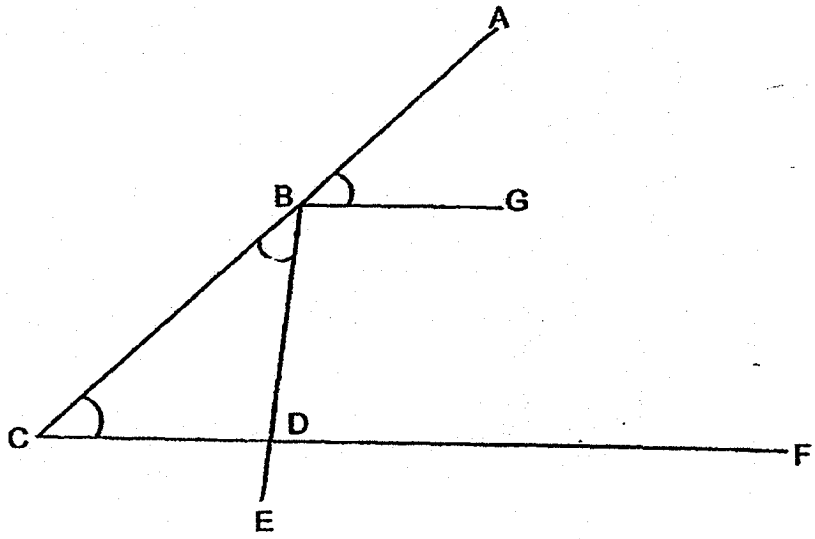


(4)

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15. 4 straight lines are connected to form the diagram shown below.

$\angle ABG = \angle EBC = \angle ACF = 41°$.



The students in a class then made the following statements:

- $\angle GBC + \angle BCF = 180°$
- $\angle GBD = \angle BDF$
- $BE \perp BG$
- $BG \parallel CF$
- $BD \perp CF$

How many of the above statements are true?

(1) 5

(2) 2

(3) 3

(4) 4

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Maha Bodhi School
2018 Preliminary Examination
Primary 6
Mathematics
Paper 1
(Booklet B)

Name : _____ ( ) Marks: /20

Class : Primary 6 _____

Date : 7 August 2018

Total Duration for Booklets A and B: 1 hour

INSTRUCTIONS TO CANDIDATES:

1. Write your Index No. in the boxes at the top right hand corner.
2. Do not turn over this page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Write all your answers in this booklet.
6. The use of calculators is **NOT** allowed.

This booklet consists of 7 printed pages.

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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. (5 marks)
All diagrams are not drawn to scale.

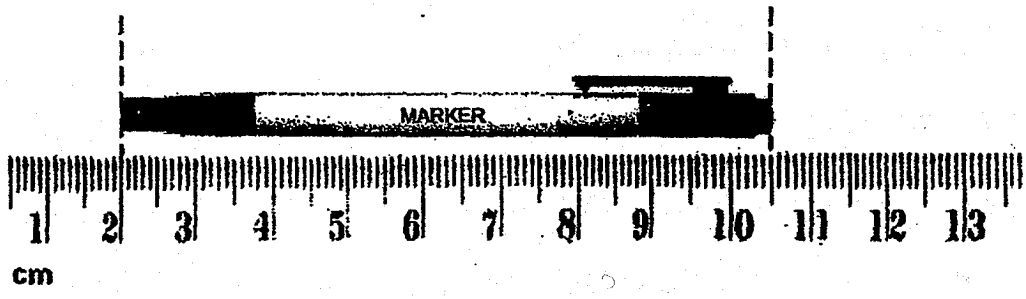
16. How many common factors are there in 24 and 32?

Ans: _____

17. Find the value of $\frac{3}{10} \div 12$. Give your answer in its simplest form.

Ans: _____

18. What is the length of the marker shown below?

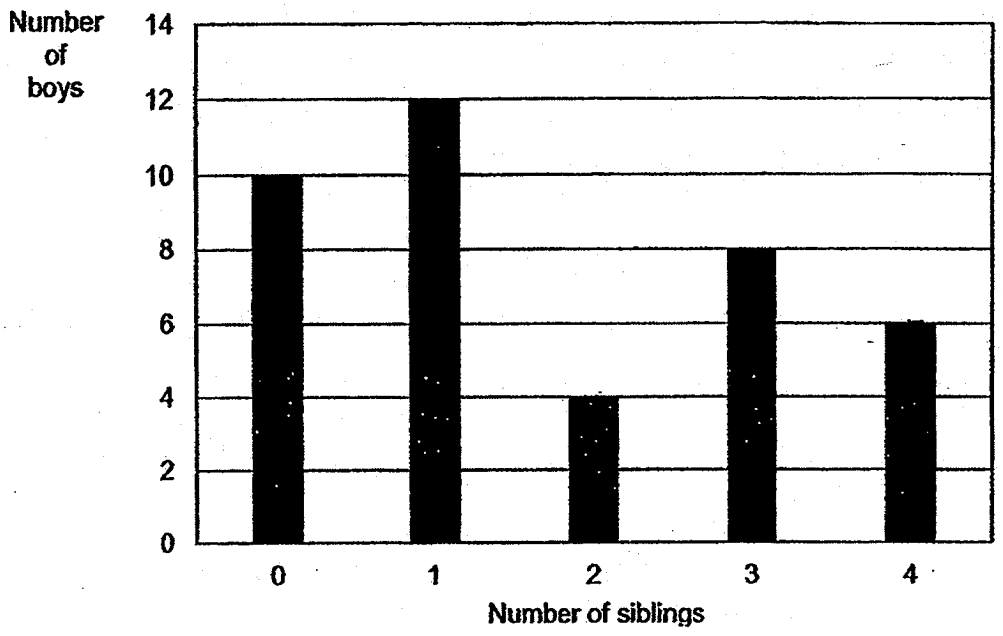


Ans: _____ cm

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19. A survey was conducted on a group of 40 boys to find out the number of siblings they have. The results of the survey are shown in the bar graph below.



Based on the results, how many boys have the greatest number of siblings?

Ans: _____ boys

20. Mr Wee baked $5n$ cookies. He gave 8 cookies to each of his pupils and had n cookies left. Express the number of pupils Mr Wee had in terms of n.

Ans: _____ pupils

/2

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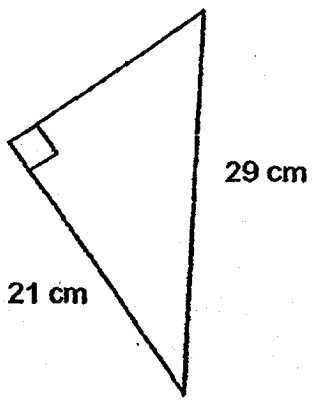
Questions 21 to 30 carry 2 marks each. Show your working clearly in the space below each question and write your answers in the spaces provided.
For questions which require units, give your answers in the units stated. (20 marks)
All diagrams are not drawn to scale.

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21. A ribbon was 70.1 cm long at first. Alice gave away some of the ribbon and the remaining ribbon was then cut into 6 equal pieces of length 8.7 cm each.
Find the length of ribbon that was given away.

Ans: _____ cm

22. The perimeter of the right-angled triangle shown below is 70 cm.
What is the area of the triangle?

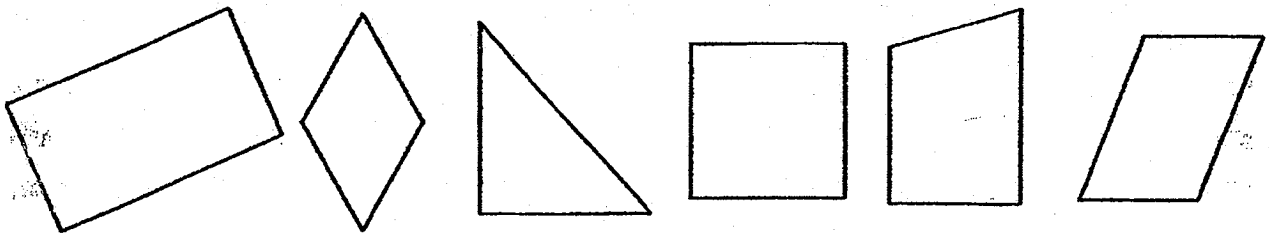


Ans: _____ cm^2

/ 4

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23. Look at the 6 geometrical figures shown below.
How many of them have both perpendicular and parallel lines?



rectangle, rhombus, right-angled triangle, square, trapezium, parallelogram

Ans: _____

24. Mr Wong had some red bowls and 76 blue bowls. He broke 8 red bowls and 6 blue bowls. He had 120 bowls left. How many red bowls did Mr Wong have at first?

Ans: _____ red bowls

25. Karen had 12 litres of fruit punch at first. Her friends drank $\frac{1}{4}$ of it.
Karen then gave $\frac{1}{2}$ litre of the remaining fruit punch to her neighbours.
How much fruit punch did Karen have in the end?

Ans: _____ litres

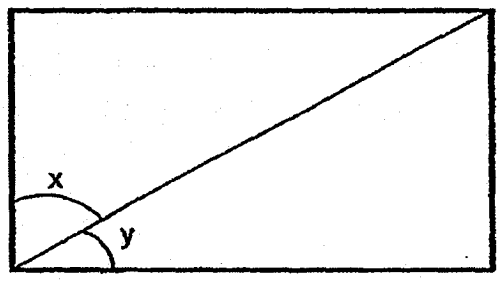
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26. At a fruit stall, the price of a mango is $\frac{3}{4}$ the price of a rock melon. The price of a guava is half the price of a mango. What is the ratio of the price of a rock melon to the price of a mango to the price of a guava?

Ans: _____

27. In the rectangle shown below, $\angle x = \frac{3}{2}$ of $\angle y$. Find $\angle x$



Ans: _____ °

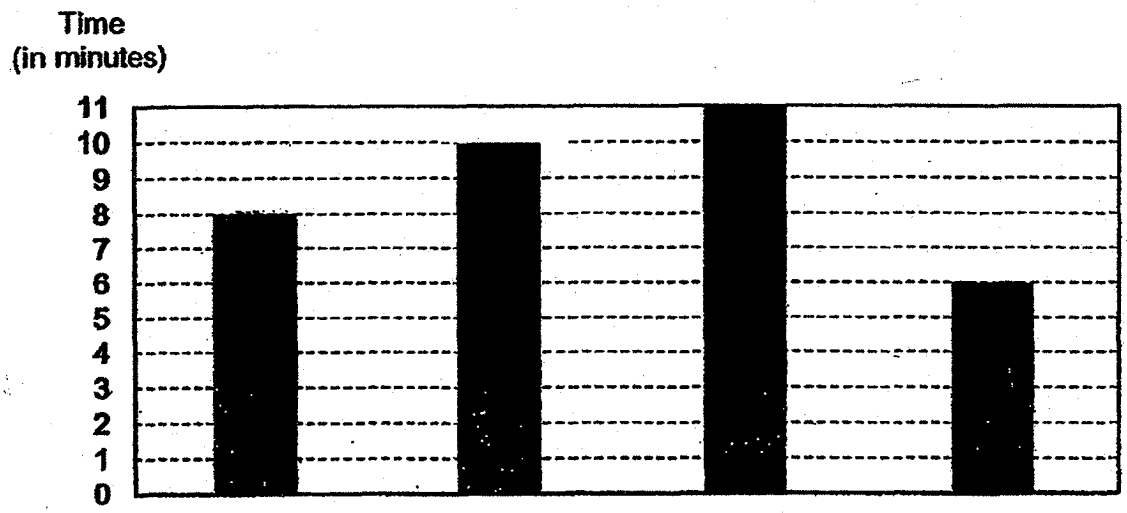
28. Yi Ting is *m* years old. Her father is 4 times her age and 2 years older than her mother. How old was Yi Ting's mother when Yi Ting was born?
Express your answer in terms of m in the simplest form.

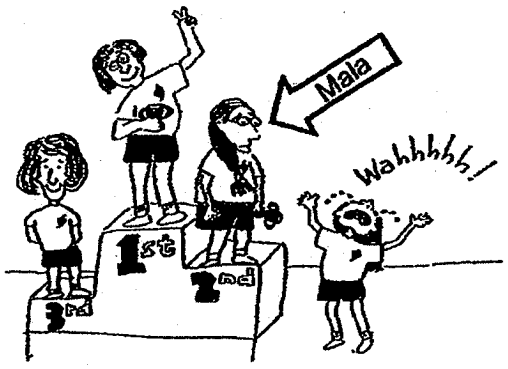
Ans: _____ years old

/ 6

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29. The bar graph below shows the timing (in minutes) taken by 4 girls to complete a 800 m race.





Write down the time taken by Mala to complete the race.

Ans: _____ min

/ 2

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30. There were 30 questions in a quiz. For the first 10 questions, Jay took 2 minutes to answer each question. He took thrice as long for each of the remaining questions. The quiz lasted 30 minutes. What is the most number of questions Jay could have answered?

Ans: _____ questions

/ 2

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Maha Bodhi School
2018 Preliminary Examination
Primary 6
Mathematics
Paper 2

Name : _____ ( )

Class : Primary 6 _____

Date : 7 August 2018

Duration: 1 h 30 min

INSTRUCTIONS TO CANDIDATES:

1. Write your Index No. in the boxes at the top right hand corner.
2. Do not turn over this page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Write your answers in this booklet.
6. The use of an approved calculator is expected, where appropriate.

Paper	Booklet	Marks Obtained	Max Marks
1	A		20
	B		25
2	-		55
Total			**100**

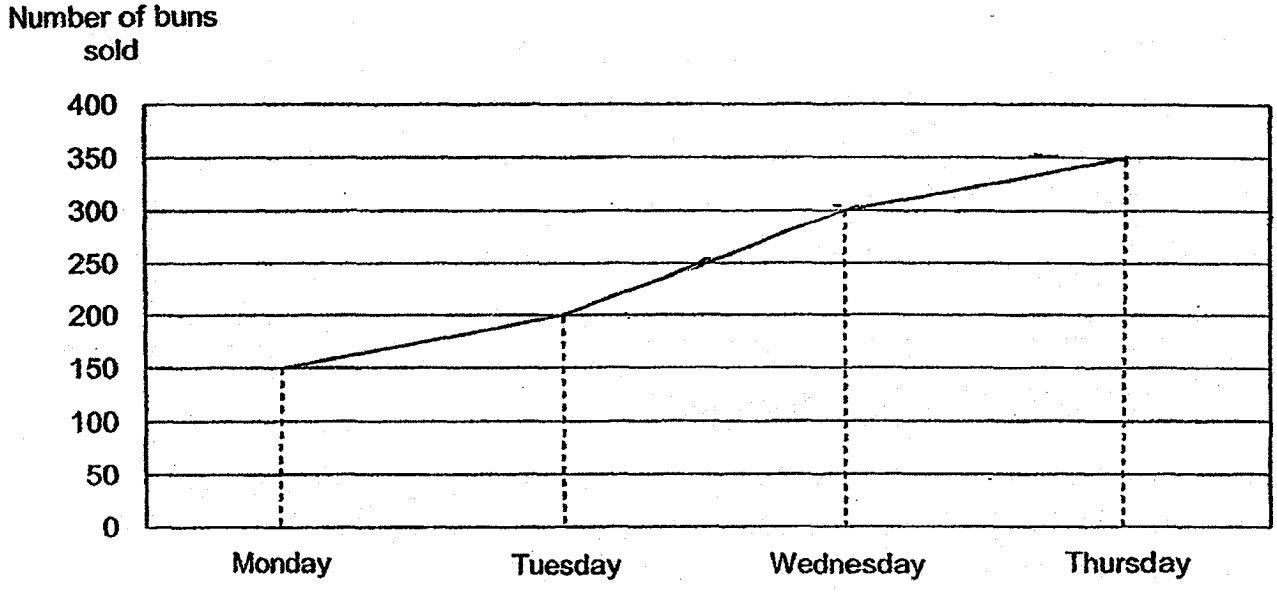
This booklet consists of **13** printed pages.

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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 are not drawn to scale.

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1. The line graph below shows the number of buns sold from Monday to Thursday.



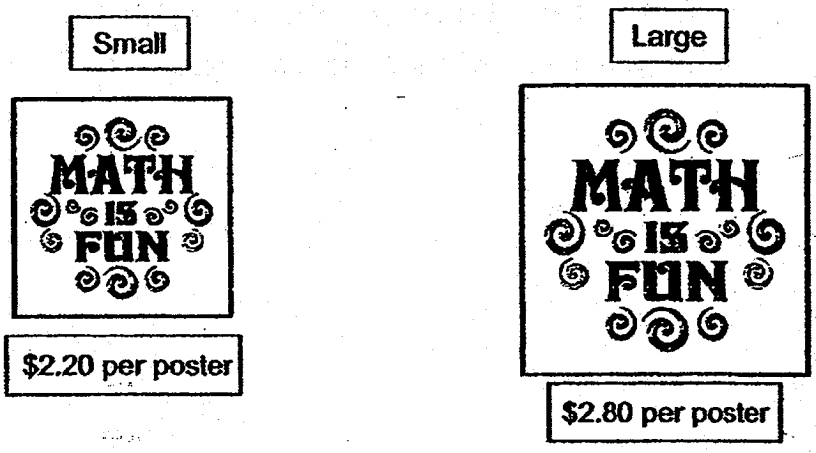
On average, how many buns were sold over the 4 days?

Ans: _____ buns

/ 2

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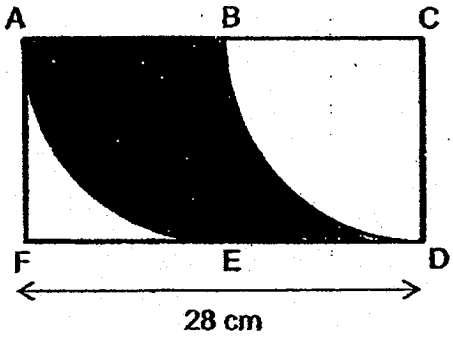
2. Two types of poster are sold at the prices shown.



Yuting paid $80.60 for some small and large posters. She bought 2 more large posters than small posters. How many small posters did she buy?

Ans: _____ small posters

3. In the figure below, ACDF is a rectangle of length 28 cm made up of two identical squares. A quarter circle is drawn in each square. What is the perimeter of the shaded part? (Take $\pi = \frac{22}{7}$)



Ans: _____ cm

/ 4

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4. Liming had a piece of wire 15x cm long. He formed a triangle with sides measuring x cm, 3x cm and 18 cm, with part of the wire. What is the length of the remaining wire? Express your answer in terms of x in the simplest form.

Ans: _____ cm

5. A barrel of oil has a mass of 3.1 kg when it was $\frac{1}{4}$ full. The same barrel of oil has a mass of 8 kg when it was $\frac{5}{6}$ full. What was the mass of the barrel of oil when it was completely full?

Ans: _____ kg

/ 4

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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. (45 marks)
All diagrams are not drawn to scale.

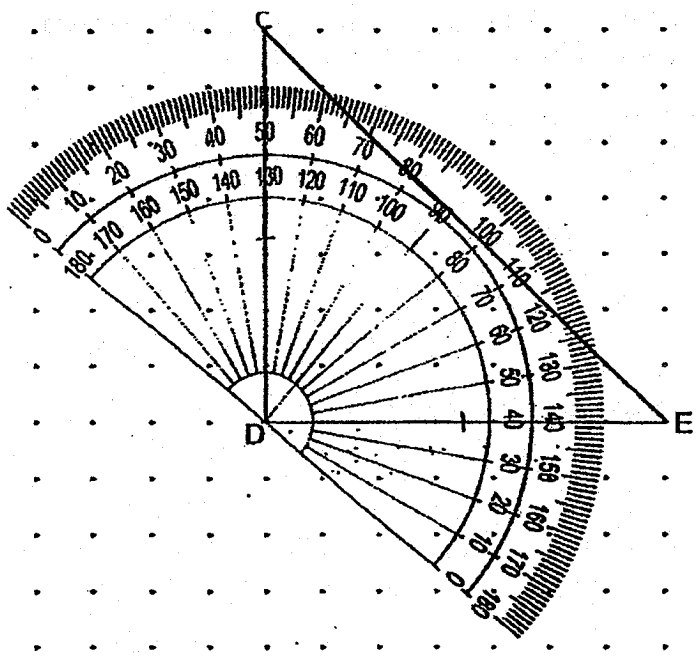
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6. CDE is a right-angled isosceles triangle. CD is perpendicular to DE.

The line DE has been drawn for you.

(a) Using the protractor in the dot paper below, draw and label Triangle CDE. [2]

(b) Measure ∠DEC.

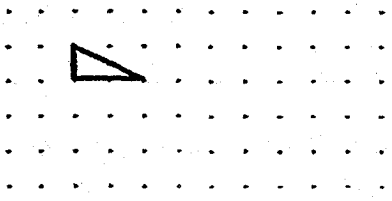


Ans: (b)_____ [1]

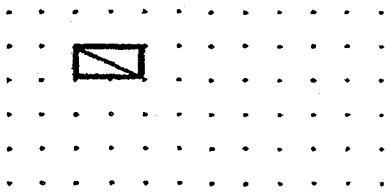
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7. A unit shape in the form of a right-angled triangle is drawn in the dot paper below.

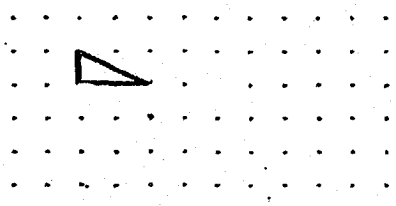


A quadrilateral formed when 2 such unit shapes are joined together as shown below has 2 lines of symmetry,



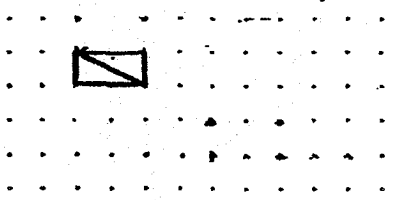
Using the **smallest** number of unit shapes, a pencil, ruler and the given dots, form another 3 **different** quadrilaterals in the dot paper below such that:

(a) the quadrilateral formed has no line of symmetry



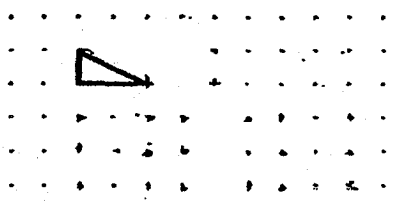
[1]

(b) the quadrilateral formed has one line of symmetry



[1]

(c) the quadrilateral formed has four lines of symmetry



[1]

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8. Mr Sim takes $\frac{3}{4}$ h to travel from his home to Town A at an average speed of 64 km/h. If he wants to reach Town A 15 minutes earlier, at what speed must he travel?

Ans:_____ [3]

9. A rectangular tank measuring 112 cm by 80 cm is filled with water to a height of 14 cm. When 28.8 litres of water is removed, the water level drops to $\frac{2}{5}$ the height of the contalner. What is the capacity of the tank?

Ans: _____ [4]

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10. Sharul was given $20 on Monday.

He recorded the fraction of the money he had that was spent that day.

The next day, he would bring the amount left from the day before to school and record the fraction of this amount of money that was spent. He repeated this daily.

The table below shows the fraction of his money that he spent on 3 days.

Date Day	13 August Monday	14 August Tuesday	15 August Wednesday	16 August Thursday
Fraction Spent	$\frac{1}{10}$	$\frac{1}{3}$	$\frac{1}{4}$	
Amount left	$18	(a)		(b)

(a) What was the amount of money Sharul had left on Tuesday?

(b) Sharul spent $2 on Thursday.

What fraction of the money he had on Thursday was spent?

Ans: (a) _____ [2]

(b) _____ [2]

/ 4

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11. Siti has some 20-cent coins and 50-cent coins in the ratio 3 : 4. The total value of all the coins is $52. What is the value of all her 20-cent coins?

Ans: _____ [3]

12. Ali, Bob and Carl shared a sum of money.
Ali received 40% of the total amount that Bob and Carl received.
Bob received 80% of what Carl received.
Bob received $96 more than Ali.
Find the sum of money shared by the 3 boys.

Ans: _____ [3]

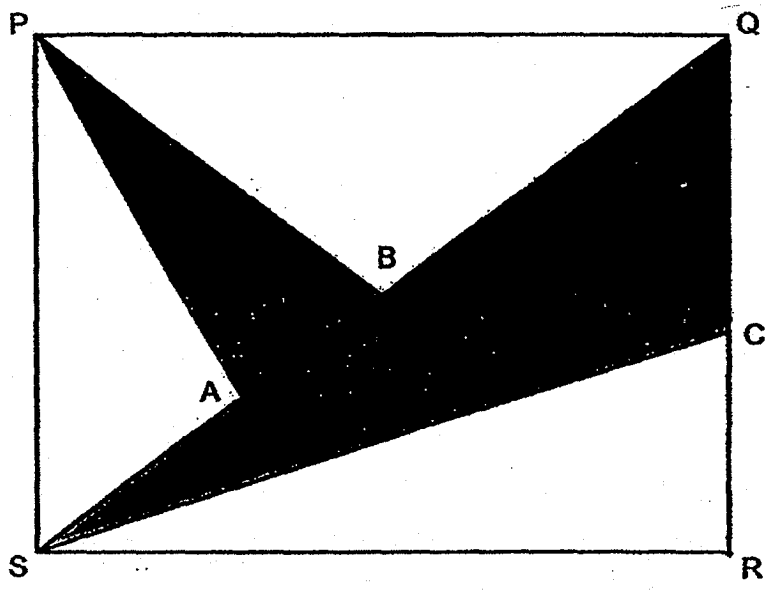
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13. In the rectangle shown below, PQ = 28 cm and QR = 21 cm.

The ratio of SA : AB : BQ = 3 : 2 : 5, CR is $\frac{3}{4}$ of QC and PB = QB.

What fraction of the rectangle PQRS is shaded?



Ans: _____ [4]

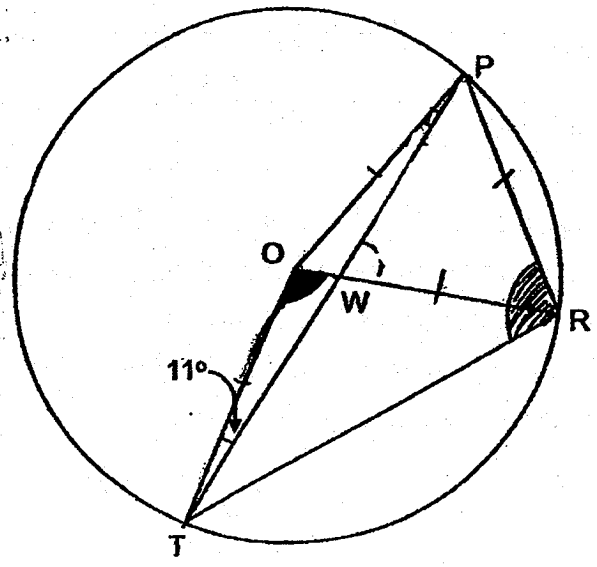
/ 4

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14. In the diagram below, Triangle OPT, Triangle OPR and Triangle OTR are inside a circle with O being the centre of the circle. OR = PR and ∠PTO = 11°.

(a) Find ∠TOR

(b) Find ∠PRT



Ans: (a)_____ [2]

(b)_____ [2]

4

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15. The teacher told the class that the average marks for a test was 82 marks.
However, Nicole was absent for the test.
The table below shows the average marks before Nicole took the test.

	Boys	Girls
Number	20	
Average marks	79	86

After Nicole had taken the test, the teacher changed the average marks for the girls and announced that the final average marks for the class was 82.5 marks.

(a) How many marks did Nicole score for the test?

(b) What was the average marks scored by the girls finally?
Give your answer correct to 1 decimal place.

Ans: (a)_____ [2]

(b)_____ [2]

/ 4

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16. The members of the Computer Club are divided into 2 groups.

There are 12 more members in Group A than in Group B.

The ratio of the number of boys in Group B to that of Group A is 3 : 4

$\frac{3}{4}$ of the girls in the Computer Club are in Group B.

There are 138 members in the Computer Club.

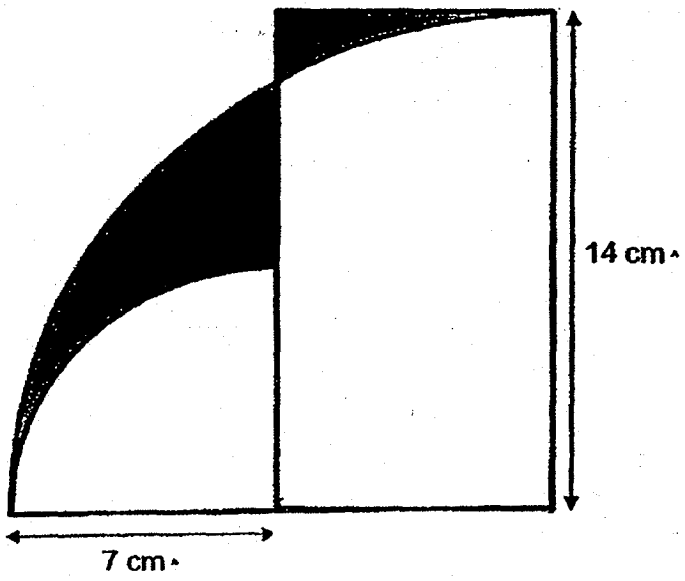
How many boys are there in Group A?

Ans: _____ [5]

/ 5

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17. The figure shows two quarter circles and a rectangle. The radius of the big quarter circle is 14 cm. The radius of the small quarter circle is 7 cm. What is the difference in area between the two shaded parts X and Y? (Take $\pi = \frac{22}{7}$)



Ans: _____ [5]



/ 5

Remember to check your work! Every mark counts.
~ End of Paper ~

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ANSWER KEY

YEAR : 2018
LEVEL : PRIMARY 6
SCHOOL : MAHA BODHI SCHOOL
SUBJECT : MATHEMATICS
TERM : PRELIMINARY EXAMINATION

PAPER 1 BOOKLET A

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

PAPER 1 BOOKLET B

Q16) 4

Q17) $\frac{1}{40}$

Q18) 8.5cm

Q19) 6

Q20) $(\frac{n}{2})$

Q21) $8.7 \times 6 = 52.2$
$70.1 - 52.2 = \underline{17.9\text{cm}}$

Q22) $29 + 21 = 50$
$70 - 50 = 20$
$\frac{1}{2} \times 20 \times 21 = \underline{210\text{cm}^2}$

Q23) 3

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Q24) 76 – 6 = 70
120 – 70 = 50
50 + 8 = <u>58</u>

Q25) Remaining fruit punch → $\frac{3}{4}$ x 12
= 9 litres
Ans: $9 - \frac{1}{2} = 8\frac{1}{2}$ litres

Q26) 8 : 6 : 3

Q27) 3 + 2 = 5
90 ÷ 5 = 18
18 x 3 = <u>54°</u>

Q28) Father → M x 4
= 4m
Mother → (4m – 2)
4m – 2 – m = <u>(3m – 2) years old</u>

Q29) 8 min

Q30) First 10 qn → 10 x 2
= 20min
Remaining time left → 30 – 20
= 10min
Time taken for ea remaining qn → 2 x 3
= 6min
10 ÷ 6 ≈ 1 qn
10 + 1 = <u>11</u>

<u>PAPER 2</u>

Q1) 150 + 200 + 300 + 350 = 1000
1000 ÷ 4 = <u>250 buns</u>

Q2) 2.80 x 2 = 5.60
80.60 – 5.60 = $75
1 set → 2.20 + 2.80
= $5

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Number of sets → 75 ÷ 5
= 15

Q3) 28 ÷ 2 = 14

$\frac{1}{2} \times \frac{22}{7} \times 28 = 44\text{cm}$

44 + 14 + 14 = 72cm

Q4) Length of remaining wire → 15x – x – 3x – 18
= (11x – 18)cm

Q5) 7 units → 8 – 3.1
= 4.9kg
1 unit → 4.9 ÷ 7
= 0.7kg
Mass of barrel of oil → 8kg + (0.7kg x 2)
= 9.4kg

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Solutions to Word Problems

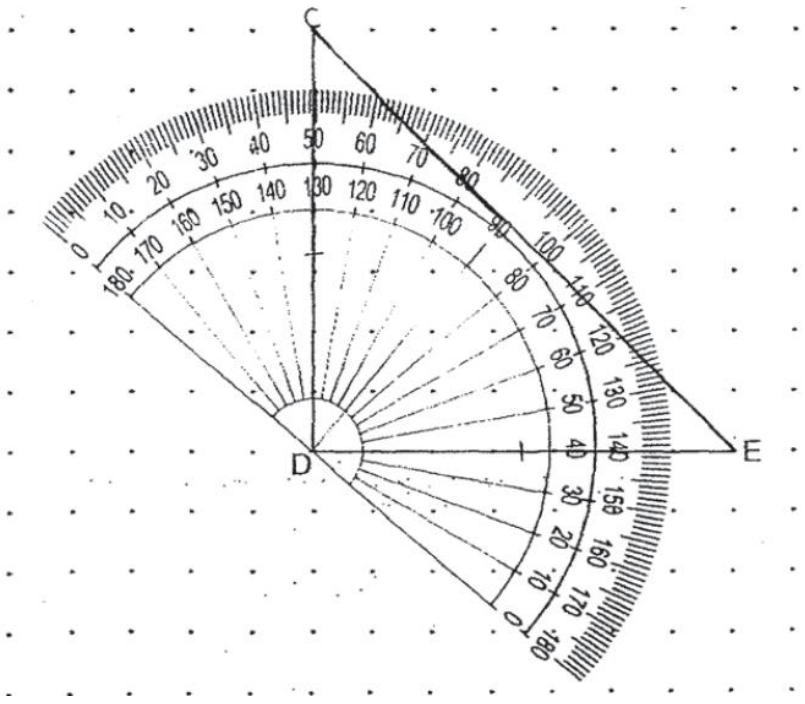
Maha Bodhi Paper 2

P6 Mathematics SA2 2018

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Show your working clearly in the space provided for each question and write your answers in the spaces provided.

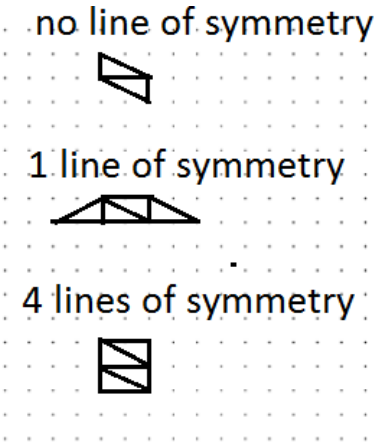
6. a)



b) ∠ DEC = 45 °

Ans: (a) as shown
(b) 45 °

7.



Ans: As shown .

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8. Distance travelled = $\frac{3}{4}$ X 64 = 48 km

Expedited time = 45 min – 15 min = 30 min = 0.5 h

New speed = 48 ÷ 0.5 = 96 km / hr

Ans: 96 km / hr

---

9. Volume of water at first = 112 x 80 x 14 = 125 440 cm^3 = 125.44 litres

Volume of water at last = 125.44 – 28.8 = 96.64 litres

$\frac{2}{5}$ of water → 96.64 litres

$\frac{1}{5}$ of water → 96.64 ÷ 2 = 48.32 litres

$\frac{5}{5}$ of water → 48.32 x 5 = 241.6 litres

Ans: 241.6 litres

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10. a)

Amount left on Tuesday = 18 x $\frac{2}{3}$ = $12

b)

Amount left on Wednesday = $\frac{3}{4}$ x 12 = $9

Fraction spent on Thursday = 2 ÷ 9 = $\frac{2}{9}$

Ans: (a) $12
(b) $\frac{2}{9}$

---

11. Ratio of value of 20-cent coins to 50-cent coins → 3 x 0.2 : 4 x 0.5 → 0.6 : 2 →
3u : 10u
3u + 10u = 52
13u = 52
u = 52 ÷ 13 = 4
Value of 20-cents coins = 3 x 4 = $12

`

Ans: $12

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12. Let Carl's amount = 100u

Bob's amount = 0.8 x 100u = 80u

Ali's amount = 0.4 x (100u + 80u) = 72u

Difference between Bob and Ali's amount = 80u – 72u = 8u = \$96

u = 96 ÷ 8 = 12

Total amount of money = 100u + 80u + 72u = 252u = 252 x 12 = \$3024

Ans: \$3024

---

13. Area of PBQ = $\frac{1}{4}$ x 28 x 21 = 147 cm^2

CR = $\frac{3}{7}$ x 21 = 9 cm (3/4 + 4/4 = 7/4)

Area CRS = 9 x 28 x $\frac{1}{2}$ = 126 cm^2

AS = $\frac{3}{10}$ x QS

Area of PAS = $\frac{3}{10}$ x 28 x 21 x $\frac{1}{2}$ = 88.2 cm^2

Shaded area = 28 x 21 – 147 – 126 – 88.2 = 226.8 cm^2

Rectangular area = 28 x 21 = 588

Fraction of shaded area = 226.8 ÷ 588 = $\frac{27}{70}$

Ans: $\frac{27}{70}$

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14. a)

∠TOP = (180 – 11 - 11) = 158°

∠TOR = 158° – 60 = 98°

b)

∠ORT = (180 – 98) ÷ 2 = 41°

∠PRT = 60 + 41 = 101°

Ans: (a) 98°

(b) 101°

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15. a)

Total difference between boys marks and average marks = (82-79) x 20= 60

Difference between girls average and class average = 86 – 82 = 4

Number of girls = 60 ÷ 4 = 15

Total increase in average = 0.5 x (20 + 15) = 17.5

Nicole's marks = 82.5 + 17.5 = 100

b)

Total marks scored by girls = 86 x 15 + 100 =1390

Average marks of girls = 1390 ÷ 16 = 86.875 ≈ 86.9

Ans: (a) 100

(b) 86.9

---

16. Number of members in Group B = (138 – 12) ÷ 2 = 63

Number of Group A members = 63 + 12 = 75

Ratio of boys in Group B to those in Group A = 3 : 4 → 54 :72

Ratio of girls in Group B to those in Group A = 3 : 1 → 9 : 3

Ratio of members in Group B to those in Group A = 63 : 75 (sum of ratios)

Number of boys in Group A = 72

Ans: 72

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17. Area of big quadrant = $\frac{22}{7}$ x 14 x 14 x $\frac{1}{4}$ = 154 cm^2

Area of small quadrant = $\frac{22}{7}$ x 7 x 7 x $\frac{1}{4}$ = 38.5 cm^2

Shaded area X minus shaded area Y = area of big quadrant – area of small quadrant – (rectangular area – area Y) - area Y

= 154 – 38.5 – 14 x 7 = 17.5 cm^2

Ans: 17.5 cm^2

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