



STUDENT NAME : _____
SCHOOL NAME : _____
DZONGKHAG : _____

ROLL NO : _____
SECTION : _____
GENDER : _____

MATHEMATICS

Reading Time: 15 Minutes

Writing Time: 2 Hours

Full Marks: 100

Year: 2019

For teacher's use only

READ THE FOLLOWING INSTRUCTIONS CAREFULLY

1. *First write your **name**, **roll number**, **section**, **name of your school**, **gender** and **Dzongkhag/Thromde** in the space given on first page.*
2. *There are two sections. Section **A** (30 marks) and **B** (70 marks).*
3. *Read the **questions** carefully and answer **all** questions.*
4. ***Do not** write in the first 15 minutes. This time is to be spent in **reading the** questions.*
5. *Write your answers to each question in the **given space**. The mark for each question is given in the **brackets**.*
6. *You have two **hours** to finish the test. Make good use of the given time.*
7. *Use of Calculator and Mobile is not allowed.*
8. *All the rough work should be carried out in the page given at the end of this booklet.*

SECTION A (30 MARKS)
ANSWER ALL QUESTIONS

Question 1

[30]

Direction: For each question, there are **FOUR** responses: **A, B, C and D**. Choose the corresponding alphabet of your response and **CIRCLE** it neatly. **NO** score will be awarded if you circle more than one.

- i. A number 1,245,400,010 can be read easily in groups of three digits. Each group is called
 - A period.
 - B place value.
 - C standard form.
 - D expanded form.

- ii. Sonam spent $\frac{6}{8}$ h in reading, $\frac{4}{8}$ h in cooking, $\frac{3}{8}$ h in playing and $\frac{2}{8}$ h in washing. In which activity did she spend more time?
 - A cooking
 - B playing
 - C reading
 - D washing

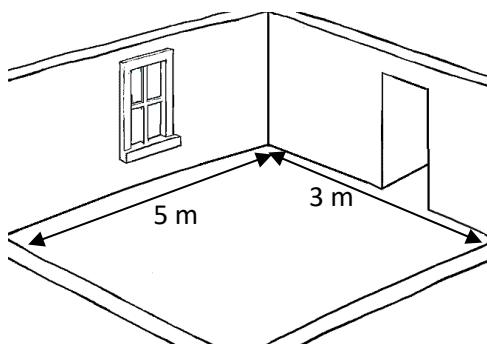
- iii. The recipe for the soup in Druk Hotel is as shown below.

Ingredients	Quantity
Tomato	
Carrot	
Onion	
Water	

The ratio of tomatoes to total ingredients is

- A 11 : 5
- B 5 : 11
- C 6 : 5
- D 5 : 6

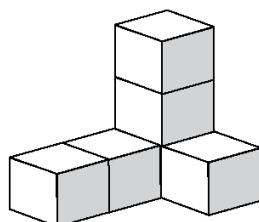
iv. The dimension of Kumar's room is shown below.



He wants to cover the floor with a carpet. What should be the size of the carpet?

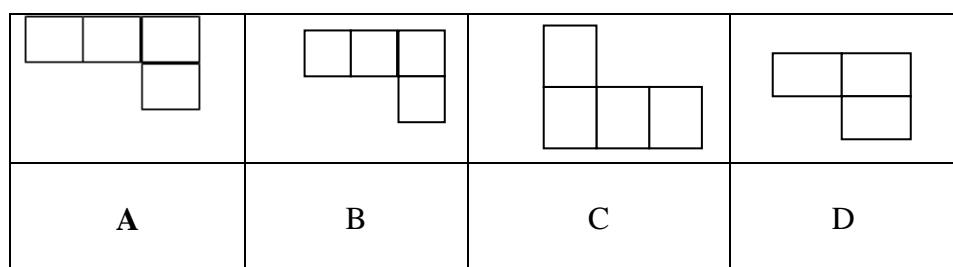
- A 8 m^2
- B 13 m^2
- C 15 m^2
- D 16 m^2

v. Study the structure given below.

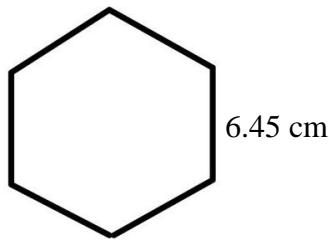


Front

Which of the 2-D drawings below shows the correct top view?



vi. Look at the shape given below.



What is the perimeter of the above shape?

- A 25.8 cm
- B 32.2 cm
- C 38.7 cm
- D 41.60 cm

vii. To mark the social forestry day on 2nd June every year, Pema's school planted the trees as shown below.

0	7	8	8	9	9
1					
2	1	1	2	3	3
3	0	0	5	8	

How many trees were planted by the school?

- A 136
- B 269
- C 310
- D 311

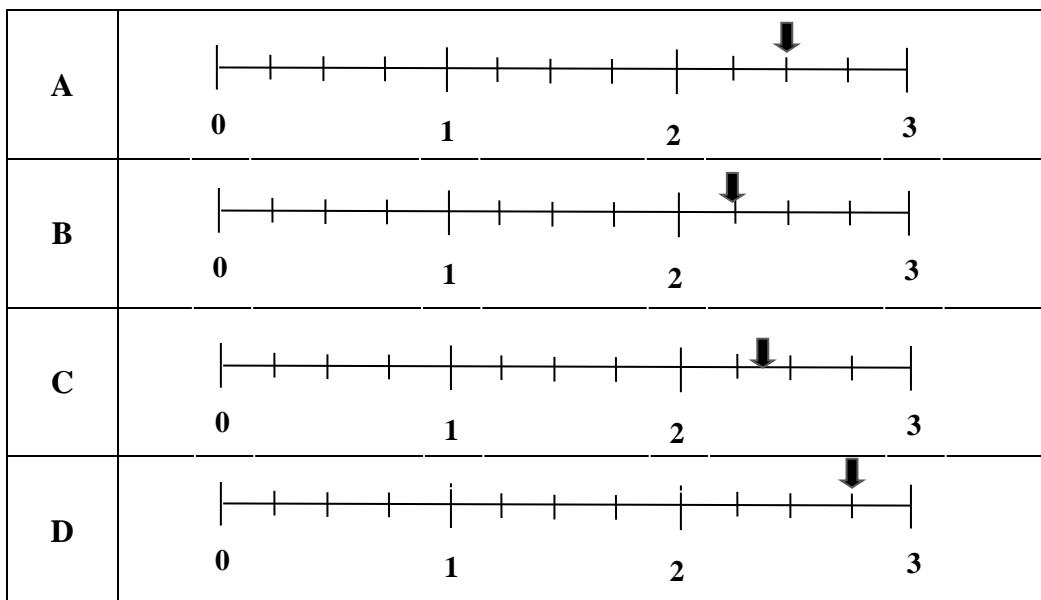
viii. Chungku is 10 months old. Her height and weight were recorded by the health assistant as given below:

Age (months)	1	2	3	4	5	6	7	8	9	10
Height (cm)	53	56	59	62	64	65	67	67	69	70
Weight (kg)	4.2	4.9	5.6	6.2	6.7	7.3	7.7	8.1	8.5	8.9

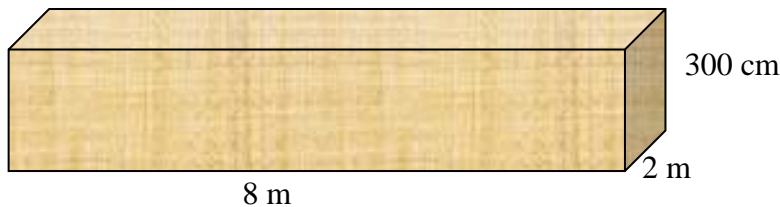
What is her mean height?

- A 70.0 cm
- B 67.0 cm
- C 64.5 cm
- D 63.2 cm

ix. Which of the following given below represent the number $2\frac{2}{4}$?



x. Calculate the volume of the shape below.



- A 48 m^3
- B 24 m^3
- C 16 m^3
- D 13 m^3

xi. Which of the following is arranged from the **least** to **greatest**?

- A $33\%, 0.45, 0.2, 0.29$
- B $0.29, 33\%, 0.45, 0.2$
- C $0.2, 0.29, 33\%, 0.45$
- D $0.2, 0.45, 33\%, 0.29$

xii. A group of villagers plan to make a vegetable garden using the shape from the coordinates **A** (2, 2), **B** (-1, 2), **C** (-3, -2), and **D** (3, -2). What will be the shape of the garden?

- A parallelogram
- B rhombus
- C rectangle
- D trapezoid

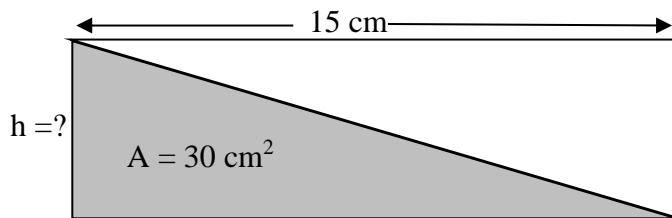
xiii. The picture given below shows the total quantity of rice that Sonam's father buys every month.



There are five members in Sonam's family. How much does each member get per month if the rice is shared equally?

- A 10.0 kg
- B 12.4 kg
- C 12.7 kg
- D 63.5 kg

xiv. Study the diagram given below carefully.



Find the height of the shaded part in the above shape?

- A 15 cm
- B 7.5 cm
- C 4 cm
- D 2 cm

xv. The table below shows the speed of four different cars.

Car 1	Car 2	Car 3	Car 4
51.3 km in 2 hours	60 km in 3 hours	72.5 km in 5 hours	18.6 km in 1 hour

The distance from Trashigang to Samdrup Jongkhar is about 180 km. Which of the above cars would help Karma to reach Samdrup Jongkhar in about 7 hours?

- A Car 4
- B Car 3
- C Car 2
- D Car 1

SECTION B (70 MARKS)
ANSWER ALL QUESTIONS

Question 2

a. The table below shows the record of income generated by four different hydro powers in Bhutan as per the Ministry of Trade and Industry till year 2016. [3]

Hydro Powers	Income (in million)
Chukha hydro power project	Nu 2028.81
Kurichu hydro power project	Nu 369.79
Tala hydro power project	Nu 3364.52
Dagachu hydro power project	Nu 370.09
Total Income

Write the **total** income generated by these four hydro projects in **expanded form** using words.

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b. Karma, Wangmo and Gopal went to pick apples using same size basket on Sunday. Their collection of apples was shown as given below. [2]

Karma	Wangmo	Gopal
$\frac{2}{7}$ of basket full	$\frac{4}{8}$ of basket full	$\frac{6}{9}$ of basket full

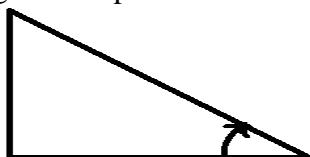
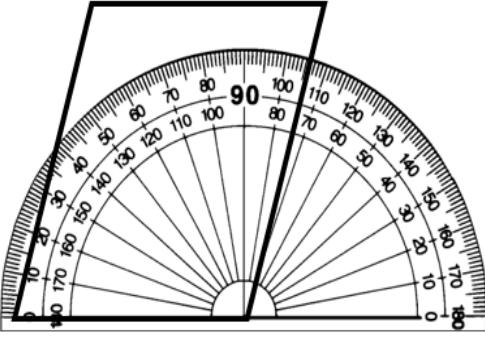
Who do you think collected more apples? Show your work.

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Question 3

Match each item in **column A** against its correct item in **column B**. Rewrite the correct matching pairs in **column C**.

[5]

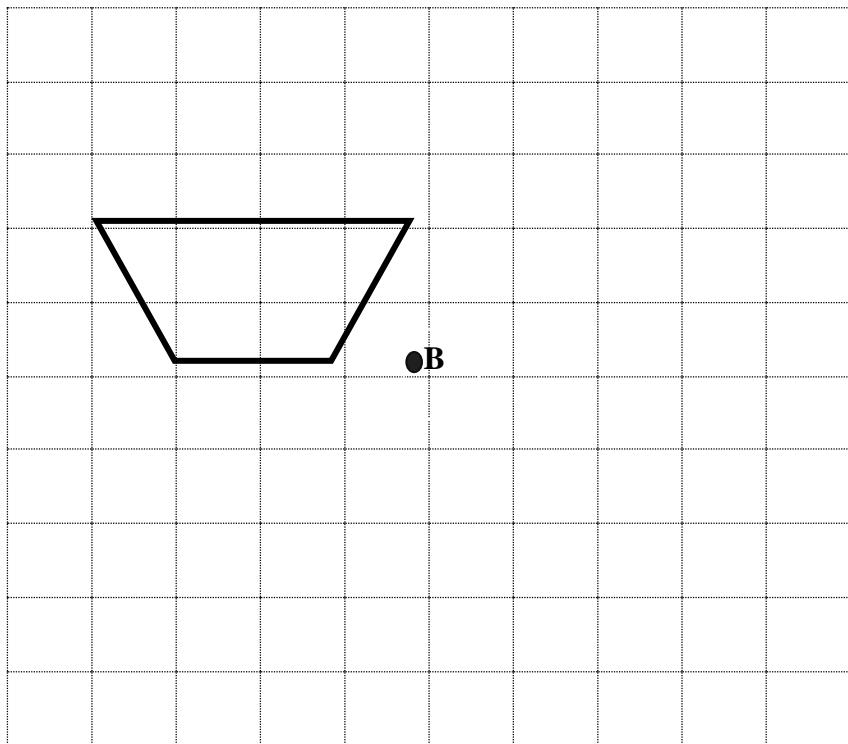
Column A	Column B	Column C
i. What angle does the arms of this clock show? 	a. protractor	i.....
ii. Estimate the angle of the given shape below. 	b. 270 degree	ii.....
iii. How much is $\frac{3}{4}$ turn in degrees?	d. about 105 degree	iii....
iv. The angle measured below. 	e. about 45 degree	iv...
v. The correct instrument for measuring angle.	f. about 75 degree	v....
	g. obtuse	

Question 4

a. Write **TWO** masses in kilograms which is bit heavier than 1.82 tonnes. [2]

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b) Rotate the shape $\frac{3}{4}$ turn cw around the turn centre **B**. [3]



Question 5

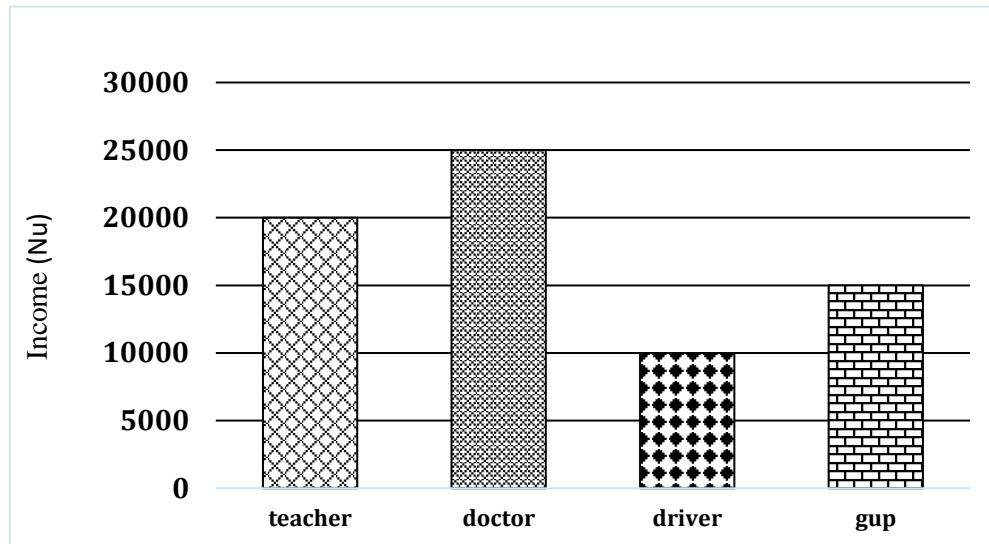
a. Calculate the following. [3]

$$6 \times (4.3 + 2.7) \div 2$$

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[2]

b. The graph given below shows the income earned by four different people per month.



If the government increases the salary of the above people by half of the present salary, how much will be the total salary that the government has to pay per month. Show your work.

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Question 6**[5]**

The table below shows the height and weight of three people.

Name	Height	Weight
Dorji	1.2 m	45 kg and 600 g
Yangki	146 cm	38,000 g
Maya	2 m and 42 cm	49.8 kg

Use the data above to circle “Yes” or “No” for each of the statements given below.

	Statement	Remarks
i.	The height of Maya is about twice that of Dorji’s.	Yes / No
ii.	The weight of Yangki is 30.8 kg.	Yes / No
iii.	The height of Dorji and Yangki are in ratio of 146 : 1.2	Yes / No
iv.	The weight of the 3 people in order from the greatest to least is 49.8 kg, 45 kg and 600 g, 38,000 g respectively.	Yes / No
v.	Dorji’s height in fraction form is $\frac{12}{100}$ metre.	Yes / No

Question 7

a. Use integer to describe each situation below:

[2]

- i. The temperature of Gasa has fallen 8 degree from 0° .
- ii. A company incurs loss of Nu 5 per bag of cement sold.

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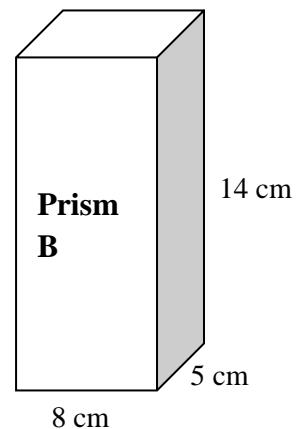
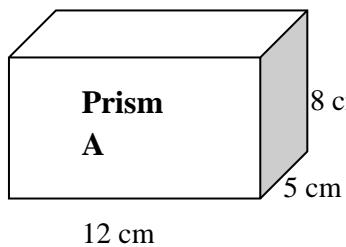
b. Chencho is a class VI student studying in Jigme Losel Primary School in Thimphu. The table below shows his record of class test scores in a month. [3]

Subjects	Marks
English	6 out of 10
Mathematics	15 out of 20
Dzongkha	18 out of 25

In which subject did Chencho perform best? Show your work.

Question 8

a. Study the two prisms with their dimensions given below. [3]



Wangmo calculated the volume of the two prisms. She said prism A has more volume than prism B. Do you agree with Wangmo? Support your answer with **ONE** justification.

b. Draw **TWO** different parallelograms with an area of 24 cm^2 each.

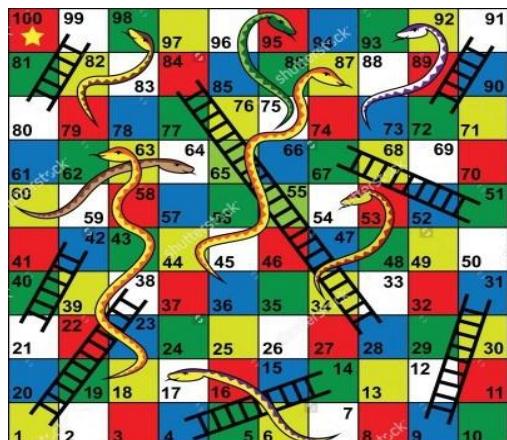
[2]

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Question 9

a. Dechen and Dorji are primary school students. They play snakes and ladders game during their free time.

[3]



Card A



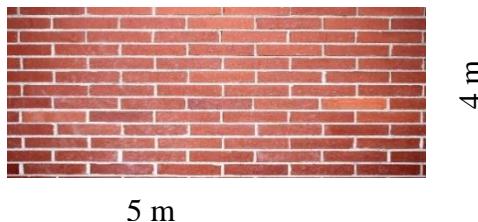
Card B



Which of the above card should they choose to play so that it has more probability of climbing a ladder? How do you know?

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b. Kelden's father is a painter. His father painted a wall with dimensions as shown in the diagram below. [2]



If 5m^2 wall requires 2 cans of paint, how many cans should he buy to paint the whole wall?

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Question 10

a. Study the number cards given below very carefully.

[3]

Hundred thousand

Fifty Five

1000

Hundred

7

Million

8

3 tens

Create any greatest number using the above number cards. Your number must fulfill the following rules:

- ✓ You are not allowed to use any of the number cards twice.
- ✓ Your number should be in billions place.
- ✓ You have to use all the number cards.
- ✓ You can't use two or more number words together.

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b. Lungten wants to find out how many hours are spent walking to work places each week by the adults in Bhutan? His plan was to ask people who live in Thimphu. Do you agree with the plan? Justify your answer. [2]

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Question 11

a. The table below shows fuel consumption of four different cars. [3]

Cars	Fuel consumption
Celerio	27.62 km per litre
Tiago	54.56 km per two litres
Baleno	82.17 km per three litres
Ciaz	26.21 km per litre

If you have 20L of petrol, which car would you choose to save fuel. Show your work.

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b. How many kilometres can Baleno travel with 40L of petrol? [2]

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Question 12

a. Look at the picture given below.

[2]

$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$
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What fractions are being added in the above picture? What is the sum? Show your work.

b. Look at the diagram given below that shows the patterns of square numbers.

[3]



Tshering says that in the 6th pattern, the number will be 6th square number. Do you agree with Tshering? Support your answer.

Question 13

a. Look at the Druk Air time table given below.

[2]



DEPARTURES		10: 50	
Scheduled Time	Flight No	Destination	Gate
07:40	KB 300	Bodh Gaya	1
11:40	KB 400	Kathmandu	2
17: 00	KB 121	Bangkok	1
13:25	KB 401	Kolkata	2

You are traveling to Kolkata on flight KB 401. The time now is 10: 50. How much time is left before your flight's departure?

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b. The table given below shows the details of various models of TV manufactured by a company.

[3]

Model	Features				
	Flat screen	Auto programming	Full option remote	Stereo sound system	Rate (Nu)
FXZA	✓	✓	✓	✓	Nu 15,700 per TV
FXZB	✓	✓	✓		Nu 28,598 per two TV
FXZC		✓	✓	✓	Nu 44,076 per three TV

Tobgay wants to buy a TV with “**full option remote**”; “**stereo sound system**” and also a **voltage stabilizer**. The cost of the voltage stabilizer is Nu 300. Which model can he buy with a budget amount of Nu 15,000? Show your work.

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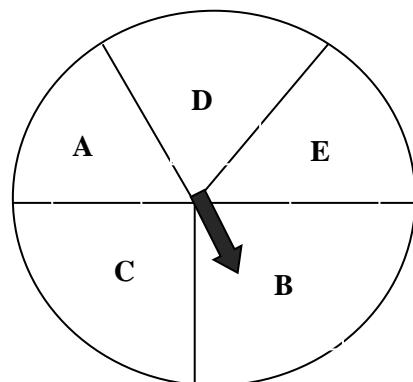
Question 14

a. Find the common factors of 36 and 40. Show your work.

[2]

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b. Dorji said that the probability of spinning **B** on a spinner given in the figure below is $\frac{1}{5}$. Do you agree? Explain your thinking. [3]



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Question 15

a. Lhamo is a four year old girl suffering from fever. She was advised by a doctor to take $\frac{1}{2}$ paracetamol **thrice** a day for 5 days. How many paracetamol tablets does she need to take in 5 days to get well? Show your work. [2]

b. Copy and complete the table given below. [3]

	Ratio	Fraction	Percent
45 to 100
0.60
$\frac{82}{100}$

ROUGH WORK

