MATHS COMPETENCY - SAMPLE

Introduction

The test below is one example of a Maths Competency Test and it is intended for use in post primary schools to determine the mathematical skills set of their first-year students and to inform the delivery and assessment of the first year mathematics programme. It is not a standardised test nor does it produce results that can be referenced against national norms. It does however enable schools to determine those elements of the curriculum where students need additional support as well as areas of particular strength. The outcomes of the test should, therefore, be carefully analysed to pinpoint precisely those areas of the curriculum requiring particular attention during first year. The first year programme should not only address the areas of weakness but should also seek to exploit any evident strengths. Assessments conducted throughout first year should take due regard of the outcomes of this analysis and questions either similar to those on the test or designed to test for the expected development within the selected curricular strands should feature where appropriate.

Over time, each school should create a series of these tests for themselves. The tests should reflect the school's context, the knowledge and skills they would expect their first years to have at the point of entry and acquire during first year and should informs the school's self-evaluation agenda. Clear objectives should be developed prior to designing the test. Clarity in relation to the objectives of the test will not only inform the content of the test itself but will direct the analysis of the outcomes of the test and the use to which the analysis is put.

When correcting the test remember you need to aggregate the marks scored on each question and express it as a percentage of the total possible marks for that question you may also choose to record the individual student marks.   A very basic tool, which is available on the website, has been created to assist you in analysing the outcomes of the test. Additional feature will be added to this tool over the coming weeks and the upgraded version will be published on the website as soon as it becomes available. In the meanwhile if you have particular questions, please feel free to contact us.

Maths Competency Test

School:	Class:
Date Administered:	Administered by:
Date Corrected :	Date Analysed:

Student Name :	
DOB :	AGE:

Question 1

(a) **Calculate** (a) $7+9$ **Answer (a)** _____ (1)

(b) $13-10$ **Answer (b)** _____ (1)

(c) $55-24$ **Answer (c)** _____ (1)

(b)

	Answer:
(i) Find the number that is **15** bigger than **32**.	(1)
(ii) Increase **56** by **11**.	Answer: (1)
(iii) Decrease **250** by **135**	Answer: (1)
(iv) Find a number that is **4 *times bigger*** than **15**	Answer: (1)

Rough Work

Question 2

(a) Calculate (i) 3×5 (ii) $6 \times (3+2)$ (iii) $3 + 2 \times 3$

Answer (i) _____ Answer (b) _____ Answer (c) _____ (3)

(b)

(i) Add 2.31 and 1.59

(ii) From 10.23 take 5.55

(iii) Double 1.24

Answer (i)_____ Answer (ii)_____ Answer (iii) _____ (3)

(iii) Look at the list of numbers given below

$$2, 5, 10, 12, 25, 49$$

From the list choose:

(a) An odd number	**Answer**:	(1)
(b) A prime number	**Answer**:	(1)
(c) A number that is 13 bigger than 12	**Answer**:	(1)
(d) A number that is divisible by 7	**Answer**:	(1)

Rough Work

The table below shows the temperature in three Irish Cities measured at noon on Christmas Eve.

City	Temperature
Galway	$4^{o}C$
Kilkenny	$-3^{o}C$
Dublin	$6^{o}C$

(a) How many degrees cooler was it in Galway than Dublin?

Answer_____(1)

(b) During the night, the temperature in Galway fell by $6^{o}C$. What was the night time temperature in Galway?

Answer_____(1)

(c) That night, it was seven times as cold in Moscow as it was in Galway. What was the temperature in Moscow?

Answer_____(1)

Rough Work

(i)Starting with the smallest, place the following fractions in order of size.

$$\frac{2}{3}, \frac{5}{12}, \frac{7}{8}, \frac{5}{6}$$

Answer (1)

(ii) A baker uses $\frac{2}{3}$ of a bag of flour to make 6 muffins.

How many bags of flour will he need to make 48 muffins?

Answer (1)

(iii)

Shade in $\frac{3}{5}$ of the rectangle shown above (1)

(iv)   What fraction of the rectangle has not been shaded?

Answer_____(1)

(v)   What percentage of the rectangle above has not been shaded?

Answer_____(1)

Question 5

(a) Mary drew some E shapes on squared paper. These are shown in the diagram below.
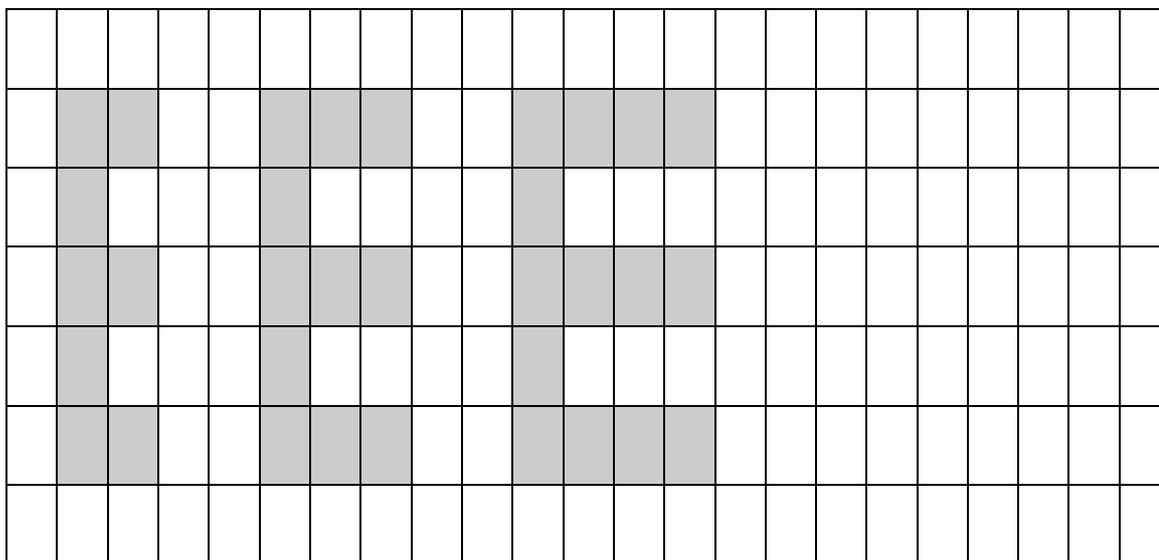
(i)   Draw the next shape in the pattern. (1)

(ii) Complete the table to show the number of shaded squares in each pattern. (5)

Shape	E1	E2	E2	E4	E5
Number of Squares					

(iii) How many shaded squares would there be in the 10th pattern?

Answer_____(1)

(iv) Fill in the two missing numbers in the sequence __, 5, 9, 13, 17, __   (2)

(b) Describe in words how the fifth term in the sequence **4, 7, 11, 16**,……… is found?
Answer_____ (1)

Find the sixth term in the sequence

Answer_____ (1)

Question 6

(a)   Calculate   (i) $\dfrac{1}{4} + \dfrac{2}{5}$ (ii) $\dfrac{5}{6} - \dfrac{1}{12}$ (iii) $\dfrac{3}{4} \times \dfrac{5}{6}$

Answer (i) _____   **Answer** (ii) _____

Answer (iii) _____   (3)

(b) Increase **25** by one fifth.   **Answer**_____   (1)

(c)   Chloe got an increase of one sixth in her pocket money. She now receives €14.00 per week. How much was her pocket money before the increase?
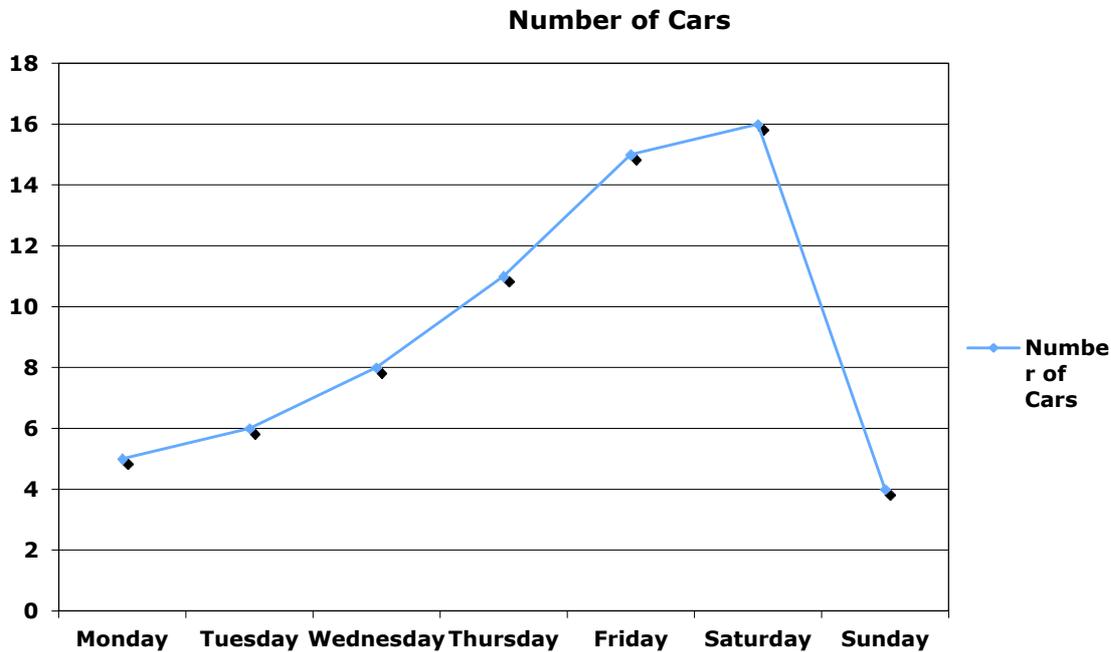
Answer

(1)

ROUGH WORK

The graph below shows the number of cars parked in a car park on each day of the week in a small town.

Number of Cars

(a) How many cars were parked in the car park on Friday?

Answer _____ (1)

(b) On which day of the week were fewest cars parked in the car park?

Answer :_____ (1)

(c) Find the total number of cars parked in the car park during the week.

Answer :_____ (1)

(d) If it costs € 5.00 to park a car in the car park. How much money is

collected over the course of the week.

Answer: _____ (1)

(e) The government announces that car parking charges will be subject to VAT at 20%. How much will it now cost to park a car in the car park?

Answer:_____ (1)

Question 8

The table below shows the way students in second year come to school.

	Walk	Car	Total
Boys	33		50
Girls		22	
Total	60		

(a)

(i) How many girls walk to school ?

Answer _____ (1)

(ii) How many girls are there in second year?

Answer Answer _____ (1)

(iii) How many students come to school by car?

Answer _____ (1)

(b)

If a student is chosen at random, what is the probability that the student is:

(i) A boy? **Answer**_____ (1)

(ii) A girl who walks to school? **Answer**_____ (1)

(iii) A boy or a girl who comes by car? **Answer**_____ (1)

Rough Work

Question 9

(a)

From the table below select the metric unit that would be most useful for measuring:

(i) the capacity of a car's petrol tank,

(ii) the weight of an elephant,

(iii) The distance from Dublin to Cork,

(iv) The length of a mouse's tail,

(v) the weight of a bag of sugar   (5)

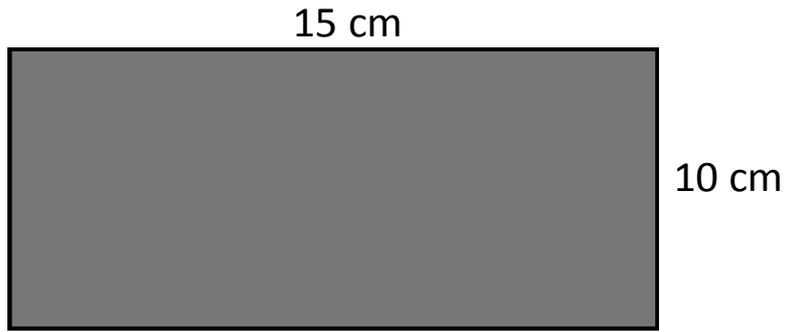| Centimeter (cm)	Kilogram(kg)	Litre (l)	Tonne (t)	Kilometer(km)

(b)

(i) Find the perimeter of this shape.

10 cm

6 cm

2 cm

13 cm
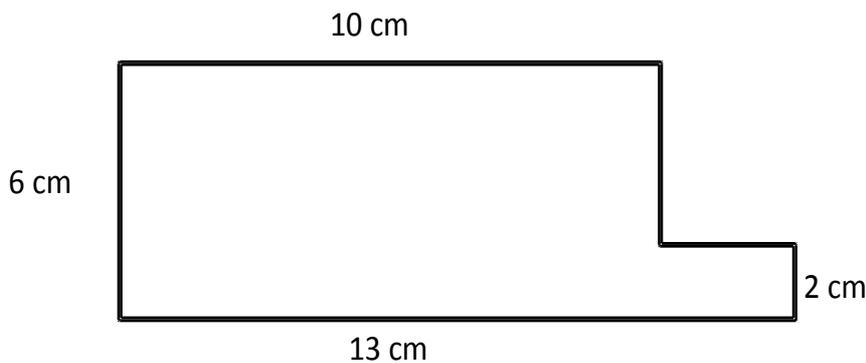
Answer _____   (2)

(ii)   Find the area of the rectangle shown below.

15 cm

10 cm

Answer _____   (2)

(c)

(i) The two shapes shown have the same area, find the missing

measurement

6 cm

9 cm

6 cm

? cm
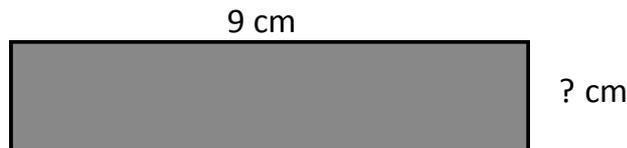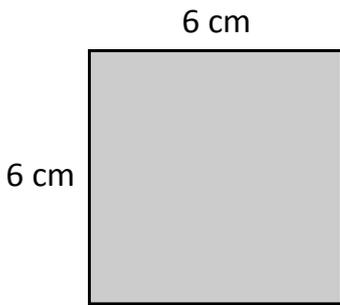
Answer

_____ (2)

(ii)   A circle is drawn on a square grid.

Each square on the grid has area 1

cm^2. Estimate the area of the circle

to the nearest cm^2
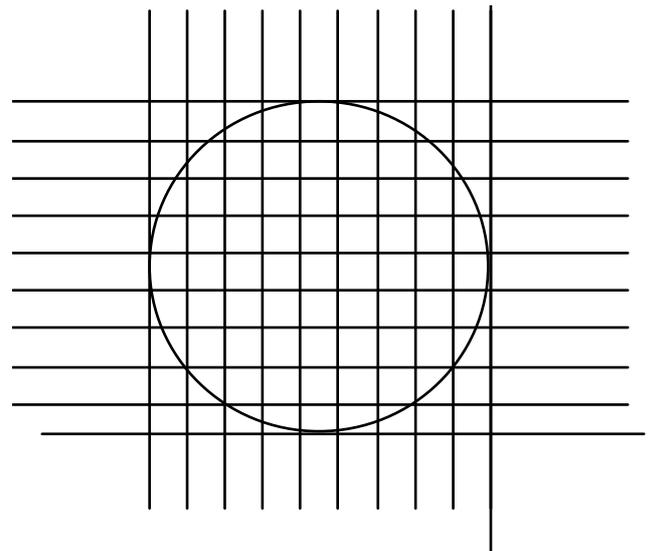
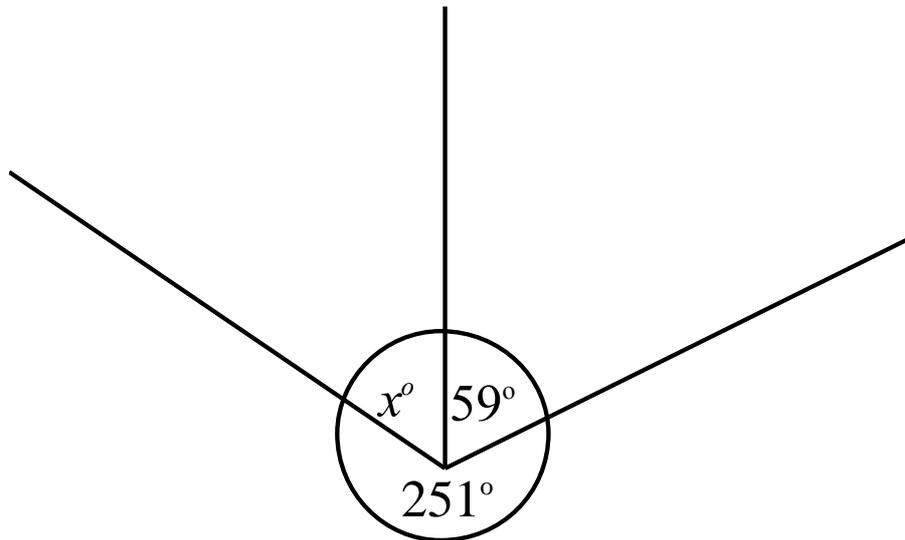**Answer** _____   (2)

(a) Examine the diagram below (not to scale) and answer the questions, which follow.

a. **59°** is an acute angle. What type of angle is **251°**?

Answer _____ (1)

b. Mark reckons that **x** has a value of **80°**. Is Mark correct?

Explain your answer.

Answer	Explanation
	(1)