St Benedict's School

SAMPLE PAPER
11+
MATHEMATICS

The examination lasts **ONE HOUR**

FIRST NAME	
LAST NAME	
PRESENT SCHOOL	

INSTRUCTIONS:

1. You should attempt **ALL** the questions and you should try to answer as many as you can.

2. You may answer the questions in any order.

3. If you cannot answer a question, or get stuck, do not worry, go to the next question, and if you have time, go back to the one you have left out.

4. For each question it is important that you make your method clear:

    a. show all the necessary working in the spaces provided even if you cannot finish a question

    b. marks can be gained for method and understanding

5. **Calculators and mathematical pencil cases are NOT allowed.**

1. Work out (using any method):

(a) 231 x 32

Answer: .... **[2]**

(b) 2496 ÷ 13

Answer: .... **[2]**

(c) 336 ÷ 1.2

Answer: .... **[2]**

(d) $(4 + 1.2^2) ÷ 2$

Answer: .... **[2]**

(e) $\sqrt{(3^2 - 8.51)}$

Answer: .... **[2]**

2. Fill in the gaps to make the calculations correct

(a)

$$\boxed{+1} - \boxed{} = -5$$
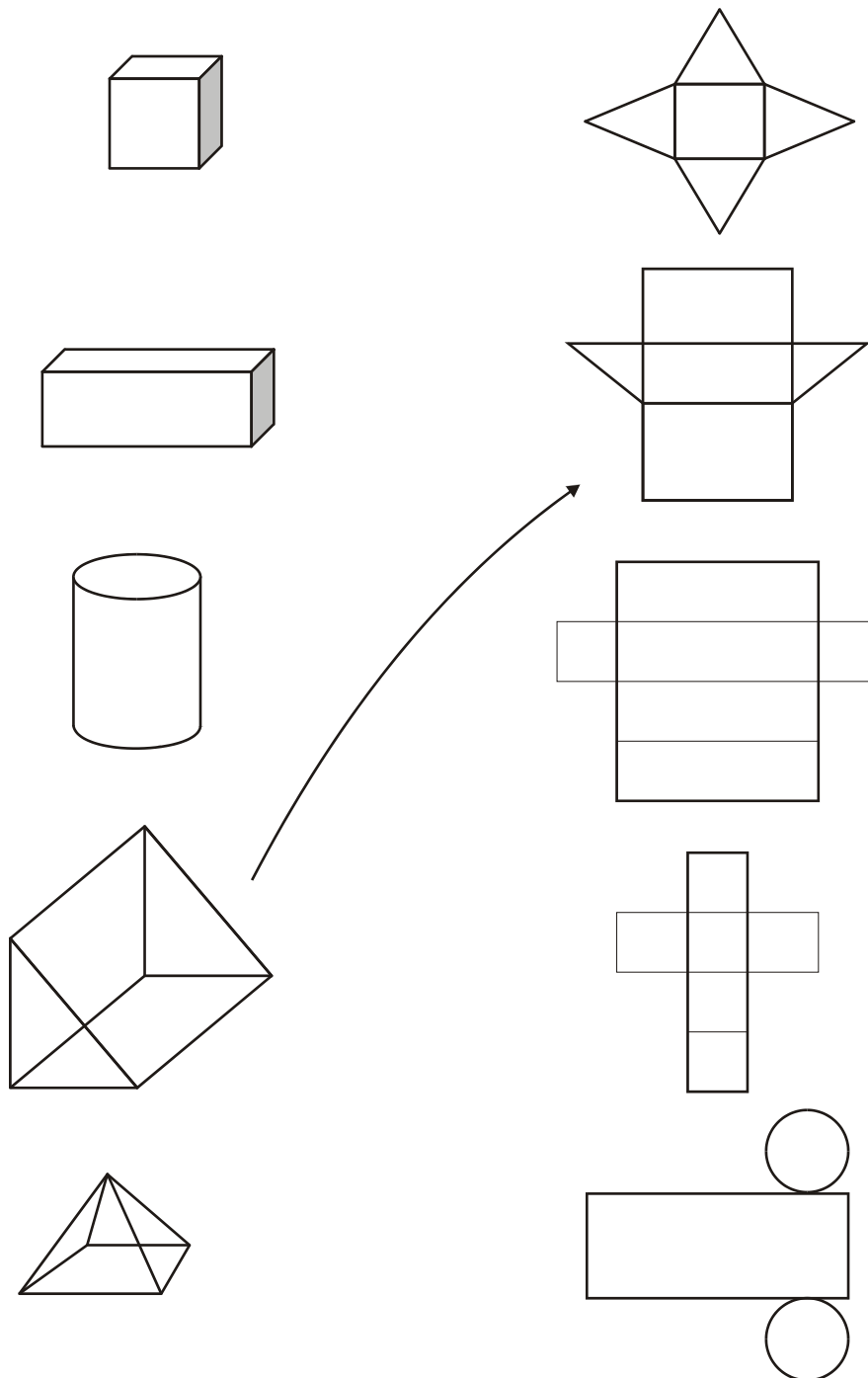
[1]

(b)

$$\boxed{-7} - \boxed{-5} - \boxed{} = 1$$

[2]

3. The diagrams show some solid shapes and their nets.

An arrow has been drawn from one solid shape to its net.

Draw an arrow from each of the other solid shapes to its net.

[4]

4. Look at the following sequence of numbers: 4, 10, 16, 22, ………, ………

(a) Fill in the next two terms

[2]

(b) Find a formula for the nth term in the sequence

………………………….[3]

(c) What would the 50th term in the sequence be?

………………………….[2]

5.

(a) 3 boxes of fruit weigh 4.85 kg, 13.6 kg and 9.07 kg.

Find the total weight of the 3 boxes.

Answer: ………………………………[3]

(b) Two additional boxes of equal weight make the total weight up to 52.92 kg.

Find the weight of each of the 2 additional boxes.

Answer: ………………………………[4]

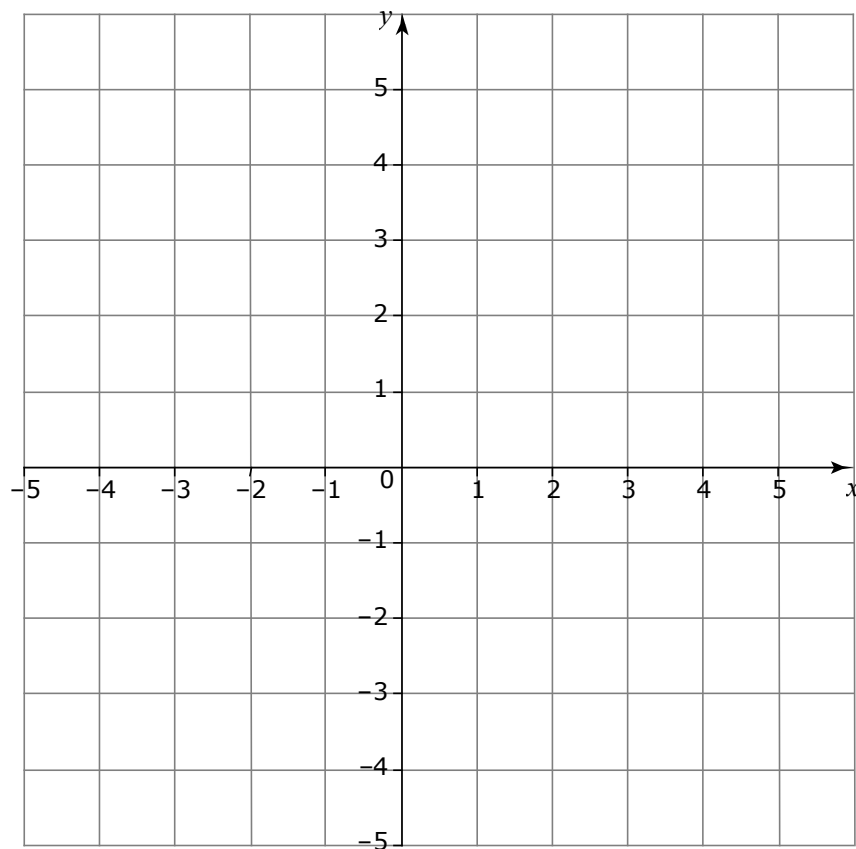**6.** Complete this table by filling in the equivalent decimals, percentages and fractions of the amounts given.

Decimal	0.4		
Percentage		75%	
Fraction			$\frac{3}{8}$

[6]

7.

(a)   Plot the points (–1, 1), (–2, 1), (–3, 3).

[3]

(b)   Join the points to make a triangle.

[1]

(c)   Find the area of the triangle.

Answer........................... **[2]**

8.
(a)   This year Jo's class has 160 maths lessons.
        Next year they will have 20% fewer lessons.

        How many maths lessons will they have next year?

Answer........................... **[3]**

(b)   This year each lesson lasts 50 minutes.
        Next year each lesson will be 20% longer.

        How long will each lesson be next year ?

Answer................minutes **[2]**

(c)   Jo thinks this means they will have exactly the same total amount of maths
        lesson time. She is wrong.

        What will be the difference?

Answer................minutes **[3]**

9.

(a) By writing these as decimals first (or otherwise), write these five fractions in order of size.

Start with the smallest fraction.

$$\frac{3}{4} \quad \frac{1}{2} \quad \frac{3}{8} \quad \frac{2}{3} \quad \frac{1}{5}$$

.... **[2]**

(b) Write these numbers in order of size.

Start with the smallest number.

$$65\% \quad \frac{3}{4} \quad 0.72 \quad \frac{2}{3} \quad \frac{3}{5}$$

.... **[2]**

10.

(a) When Jane babysits she charges £15 for an evening up to 10pm then £2 for every quarter of an hour after 10pm.

One evening Jane earned £27.

What time did Jane finish babysitting?

Answer: .... **[2]**

(b)   Jane saves £195 for 1 year with an interest rate of 3%

How much interest does she receive?

£ .... **[3]**

11.   Billy takes nine maths tests before half term. His marks, out of ten, were

3, 7, 9, 5, 6, 10, 7, 3, 4

(a)   Calculate his median mark

Answer ……………………………….. **[1]**

(b)   Calculate his mean mark.

Answer ……………………………….. **[2]**

After half term, Billy takes **another** eleven maths tests. His mean mark for these 11 tests was 7.

(c)   What was Billy's mean mark for the entire term?

Answer ……………………………….. **[1]**

(d)   Find five numbers that have a **range of 7**, a **mean of 5** and a **median of 6**.
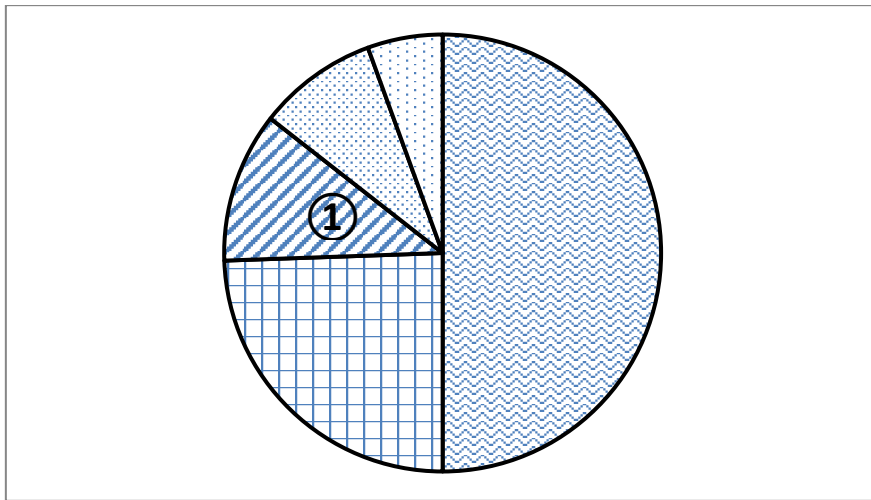
Answers: ………,   …………,   ………..,   ………,   ………., **[2]**

12. **90 students** were asked to name their favourite subject.

Below is a table displaying the results of this question.

Favourite Subject	Number of People
Mathematics	45
English	22
Science	10
Geography	8
Other Subjects	5

A pie-chart was drawn from the data and is shown below

(a) What **angle** is represented in sector ①?

Answer ……………………………….. **[1]**

(b) **10 pupils**, who were absent when the survey was done, were asked what their favourite subject was. **Half** said "**mathematics**" and the other **half** said "**geography**".

The pie – chart was then **redone** to include these extra ten results.

Circle the correct word in bold to make the following sentences true.
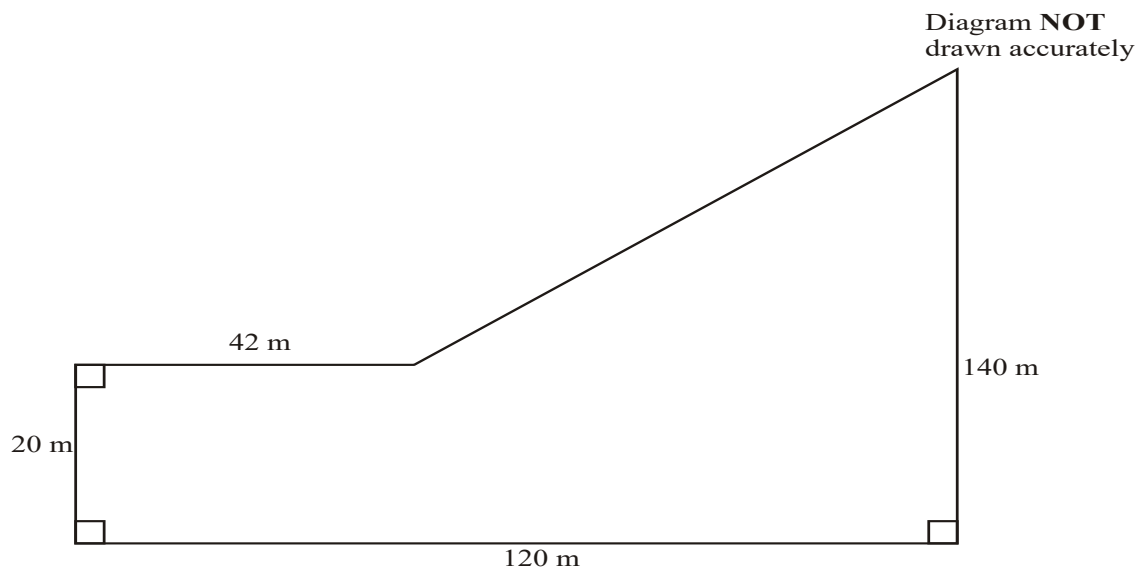
The size of the Mathematics sector will **increase / decrease / stay the same** compared to the original pie chart.

The size of the English sector will **increase / decrease / stay the same** compared to the original pie chart.

The size of the Geography sector will **increase / decrease / stay the same** compared to the original pie chart.

[3]

13.

Diagram **NOT** drawn accurately

42 m

140 m

20 m

120 m

The diagram shows a car park.

Mrs Roberts is selling the car park. She will accept any offer that is more than £28 per square metre.

Mr Patel offers £194,700 for the car park.

Will Mrs Roberts accept Mr Patel's offer for the car park?

You must show how you reached your decision.

Decision ……………………………….. **[6]**

14.

(a)   Claire thinks of a number. She multiplies the number by 9 and then subtracts 10.

   If the number she gets is 35, what number did she think of?

   Answer ……………………………….. **[1]**

(b)   Patrick thinks of three **prime numbers**.
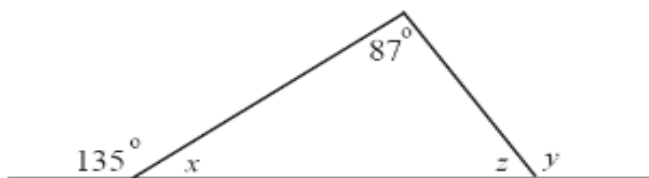   When he adds them together he gets 40.

   What is the difference between the two biggest of the three numbers?

   Note: A prime number is a number which can only be divided by itself or one.

   Answer ……………………………….. **[3]**

15.

Diagram not drawn to scale.

Find the missing angles:

x =……………..   y =……………….   z =……..…………

[3]

16.

A number of triangles and squares are drawn on a piece of paper, separately.

The total number of sides is 110 and there are twice as many squares as there are triangles.

How many triangles are there?

Answer ………………………….. **[3]**

End of Examination Paper