



**ST NICHOLAS COLLEGE  
RABAT MIDDLE SCHOOL  
HALF YEARLY EXAMINATIONS  
February 2016**

<b>Level 6 – 7</b>
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**FORM 2**

**MATHEMATICS**

**TIME: 1hr 30min**

<b>Main Paper</b>
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Question	1	2	3	4	5	6	7	8	9	10	11	12	Total Main	Non-Calculator	Global Mark
Mark															

**DO NOT WRITE ABOVE THIS LINE**

**NAME & SURNAME:** \_\_\_\_\_ **CLASS:** \_\_\_\_\_

**INSTRUCTIONS TO CANDIDATES:**

**Read all the questions carefully before you start answering.**

- Answer all questions.
- This paper carries 75 marks.
- Calculators and mathematical instruments are allowed but all necessary working must be shown.

1. (a) Work out:

(i)  $25 - 5 \times 2 =$

(ii)  $(16 + 11) \div 3 =$

Answer: \_\_\_\_\_

Answer: \_\_\_\_\_

(b) Work out, giving your answer correct to **2 decimal places**:

$$\left( \frac{8.95 + 9.6}{5.2} \right)^2$$

Answer: \_\_\_\_\_

(4 marks)

2. Here are the numbers from 1 to 9.



(a) Choose the **four** numbers that are **prime**.

Answer: \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

(b) The number 162 can be written as  $2 \times 3^x$ . What number does  $x$  represent?

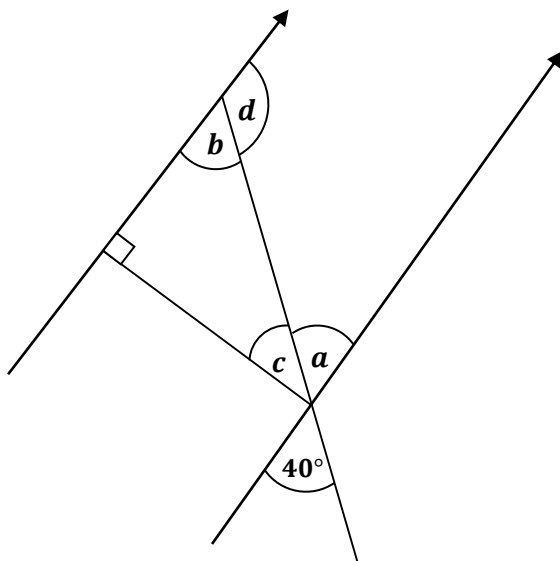
Answer:  $x =$  \_\_\_\_\_

(c) Two lighthouses **A** and **B** can be seen from the top of a hill.  
 Lighthouse **A** flashes once every 8 seconds, while **B** flashes once every 15 seconds.  
 If they flash at the same time, after how many **minutes** will the lighthouses flash together again?

Answer: \_\_\_\_\_ minutes

(6 marks)

3. The diagram shows angles between two parallel lines.  
 Work out the size of angles  $a$ ,  $b$ ,  $c$  and  $d$ , giving a reason for each answer.  
Note: Diagram is not drawn to scale.



Angle  $a =$  \_\_\_\_\_<sup>o</sup>

Reason: \_\_\_\_\_

Angle  $b =$  \_\_\_\_\_<sup>o</sup>

Reason: \_\_\_\_\_

Angle  $c =$  \_\_\_\_\_<sup>o</sup>

Reason: \_\_\_\_\_

Angle  $d =$  \_\_\_\_\_<sup>o</sup>

Reason: \_\_\_\_\_

(8 marks)

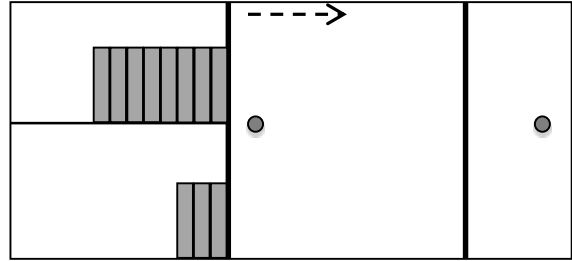
4. (a) Put  $<$ ,  $=$  or  $>$  in the blank space to make the statements correct:

i)  $\frac{4}{11}$  \_\_\_\_\_  $\frac{1}{3}$

ii)  $\frac{3}{8}$  \_\_\_\_\_  $\frac{15}{40}$

iii)  $\frac{5}{6}$  \_\_\_\_\_  $\frac{7}{8}$

(b) Maria keeps her files in a cupboard. As she slides the door to the right (as shown), Maria can see  $\frac{1}{3}$  of the files on the **top** shelf and  $\frac{1}{5}$  of the files on the **bottom** shelf.



Work out the number of files:

i) On the top shelf?

ii) In the cupboard?

Answer: \_\_\_\_\_ files

Answer: \_\_\_\_\_ files

(7 marks)

5. Dexter uses LOGO to draw the flag shown in this diagram. The length of each side is given in turtle steps.

(a) **Fill in** the set of commands used to draw the flag.

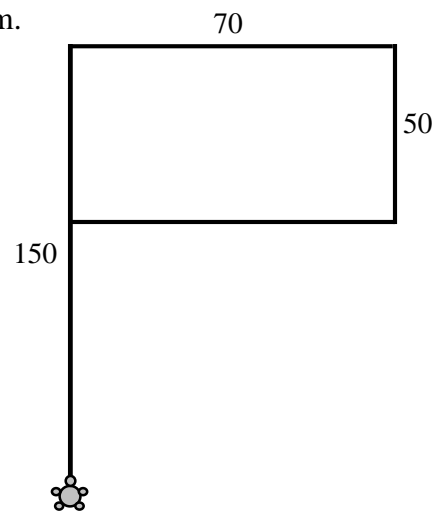
PD FD \_\_\_\_\_

FD 150 RT 90

RT \_\_\_\_\_ 70

FD 70 RT 90

\_\_\_\_\_ 90 BK \_\_\_\_\_



(b) How far did the turtle travel?

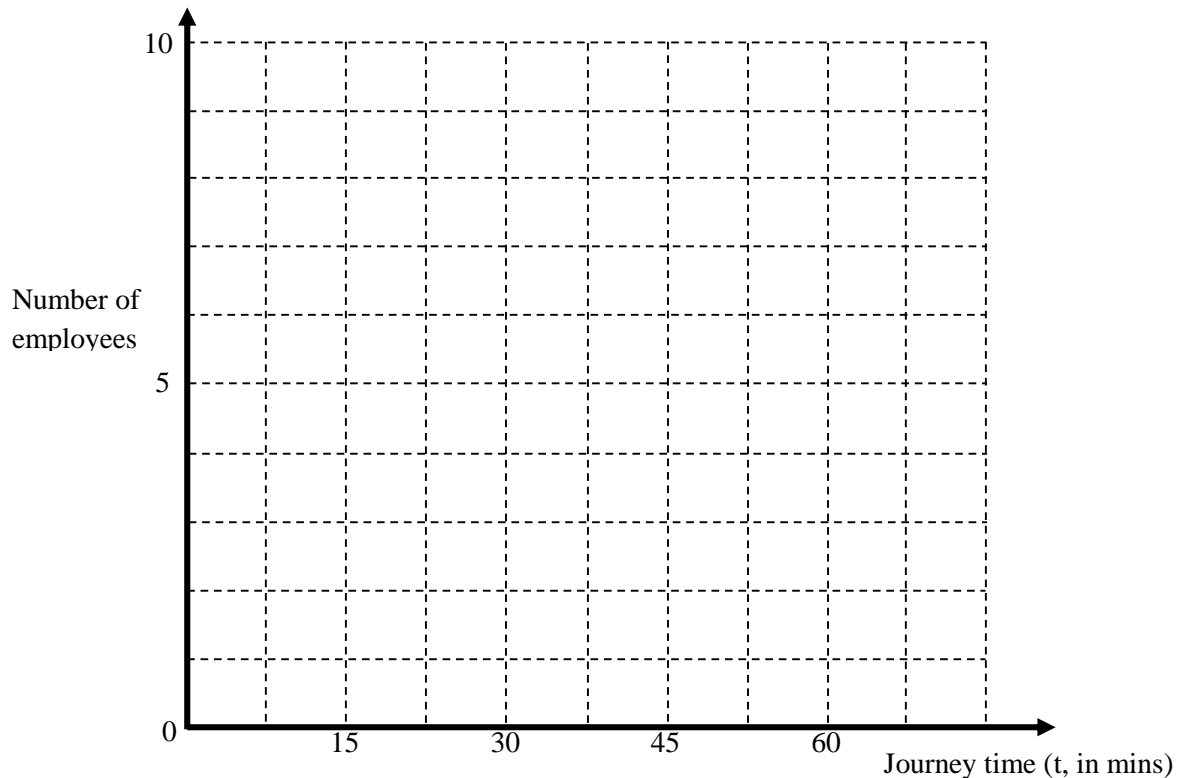
Answer: \_\_\_\_\_ turtle steps

(5 marks)

6. The frequency table below is based on a survey of the journey times of the employees working at 'Smart Time' insurance company.

Journey time (minutes)	0-15	16-30	31-45	46-60
Number of employees	3	9	5	4

- (a) In the space below, draw a bar chart to represent the above information.



- (b) **Fill in:**

- i) A total of \_\_\_\_\_ employees took part in the survey.
  - ii) \_\_\_\_\_ employees had a journey time of half an hour or less.
- (c) Is it possible to find the number of employees who had a journey time of five minutes?  
Give a **reason** for your answer?

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(7 marks)

7. A new healthy snack bar called ‘**Fibre Crunch**’ is on sale. Each bar weighs 40 g. It contains 2 g of **protein**, 3 g of **fat** and the rest being **carbohydrates**.



Fill in the table for the missing information.

<b>FIBRE CRUNCH</b>	<b>Fraction</b>	<b>Decimal</b>	<b>Percentage</b>
<b>Protein</b>	$\frac{2}{40}$		
<b>Fat</b>		0.075	
<b>Carbohydrate</b>			87.5%

(6 marks)

8. (a) Draw the following angles accurately:

(i)  $45^\circ$

(ii)  $150^\circ$

(iii) Which is acute,  $45^\circ$  or  $150^\circ$ ?

Ans: \_\_\_\_\_

- (b) Write down the mode of the following numbers:

(i) 27, 13, 4, 17, 9, 4

Ans: \_\_\_\_\_

(ii) 1, 23, 25, 16, 23, 1, 25

Ans: \_\_\_\_\_

(6 marks)

8. (a) A washing machine costs €350.  
A shop offers a **20% discount** from the original price.  
Work out the **new price** of the washing machine.

**Special Discount**



Answer: € \_\_\_\_\_

- (b) During a sale, Charlotte buys a coat for €60.  
The original price of the coat was €80.  
Work out the **percentage decrease**.



Answer: \_\_\_\_\_%

(5 marks)

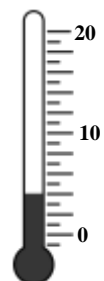
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9. Mark travelled to Moscow. He arrived at 16:00 and noticed that the temperature was  $2^{\circ}\text{C}$ .  
By midnight the temperature dropped to  $-12^{\circ}\text{C}$ .  
(a) By how many degrees Celsius had the temperature fallen?

Answer: \_\_\_\_\_ $^{\circ}\text{C}$

At 08:00 the next morning, the thermometer indicated a new temperature.

(b) **Complete:**

- (i) The temperature indicated by the thermometer is \_\_\_\_\_ $^{\circ}\text{C}$ .  
(ii) From midnight to 08:00 the temperature had gone up by \_\_\_\_\_ $^{\circ}\text{C}$ .



(4 marks)

10. (a) Find the value of  $x$  in the following equations:

i)  $x + 3 = 10$

Answer:  $x =$  \_\_\_\_\_

ii)  $2x - 2 = 14$

Answer:  $x =$  \_\_\_\_\_

iii)  $3(x + 10) = 15$

Answer:  $x =$  \_\_\_\_\_

(b) Joanne had € $x$  in her moneybox. On her birthday she managed to **double** this amount. Her brother **added** a further €5 to her amount. Now she could buy a mobile phone costing €76.



i) **Form** an equation in  $x$  to show how Joanne managed to save her money to buy the mobile phone.

Answer: \_\_\_\_\_ = 76

ii) **Solve** the equation to find the original amount of money in Joanne's moneybox.

Answer: € \_\_\_\_\_

(10 marks)

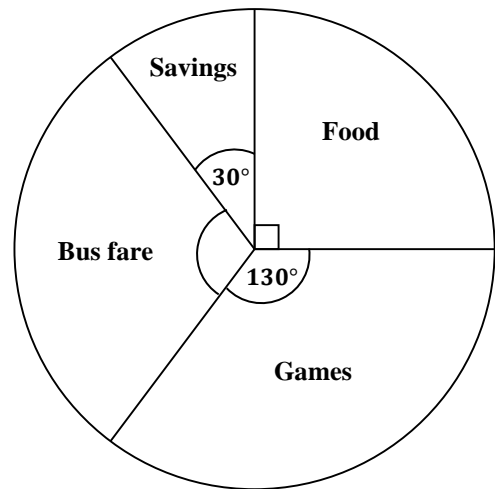
11. The pie chart below shows how Andy spends the pocket money he receives every week. Andy's **savings** amount to €0.50.

(a) How much does he spend on food?

Answer: € \_\_\_\_\_

(b) What fraction of his pocket money does he spend on food?

Answer: \_\_\_\_\_



(c) How much pocket money does Andy receive each week?

Answer: € \_\_\_\_\_

(d) On which item does Andy spend most of his money?

Answer: \_\_\_\_\_

(7 marks)

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**END OF MAIN PAPER**