



**Coimisiún na Scrúduithe Stáit  
State Examinations Commission**

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**LEAVING CERTIFICATE EXAMINATION, 2006**

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**MATHEMATICS - FOUNDATION LEVEL**

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**PAPER 1 ( 300 marks )**

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**THURSDAY, 8 JUNE - MORNING 9:30 – 12:00**

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Attempt **QUESTION 1** (100 marks) and **FOUR** other questions (50 marks each).

**WARNING:** Marks will be lost if all necessary work is not clearly shown.

**Answers should include the appropriate units of measurement,  
where relevant.**

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1. (i) Find  $\sqrt{63}$ , correct to two decimal places.
- (ii) Find the exact value of  $(13.2 - 4.8)^2$ .
- (iii) Find  $(1.75)^4$ , correct to one decimal place.
- (iv) Find the exact value of  $\frac{7}{0.4} - \frac{3}{0.25}$ .
- (v) Find 12.5% of €25.79, correct to the nearest cent.
- (vi) Find the value of 525 Polish zloty in euro, given that €1 is worth 4.2 Polish zloty.
- (vii) Express  $2\frac{3}{5} - \frac{5}{7}$ , as a decimal, correct to two decimal places.
- (viii) The cost of a CD player is €125. A student is given a €15 reduction on the price. Express this reduction as a percentage of the cost.
- (ix) Find the exact value of

$$\frac{88.8 \times 10^4 + 1.47 \times 10^5}{2.3 \times 10^3}.$$

- (x) Find, correct to two significant figures, the value of

$$\frac{19.5 \times 7.64}{8.26 - 3.24}.$$

2. (a) A metal bar is cut into two pieces. One piece is 1.35 metres and the other is 85 centimetres.  
How long was the bar before it was cut?
- (b) Ciara is paid €11.50 per hour. She works a 38 hour week.
- (i) Find her gross income for the week.
  - (ii) Ciara's weekly tax credit is €62 and her tax rate is 20%.  
Find the amount of tax payable by Ciara.
  - (iii) What is Ciara's weekly take home pay?
- (c) The distance from Dublin to Galway is 220 km. A bus travels from Dublin to Galway, stopping in Athlone. The average speed of the bus from Dublin to Athlone is 65 km/h. It reaches Athlone in two hours, then completes the journey to Galway.
- (i) What is the distance from Dublin to Athlone?
  - (ii) What is the distance from Athlone to Galway?
  - (iii) If the bus travels from Athlone to Galway at an average speed of 60 km/h how long will this part of the journey take? Give your answer in hours and minutes.
3. (a) Emer estimated that she had 90 cent in small coins. In fact, she had 87 cent.
- (i) Find the error in her estimate.
  - (ii) Find the percentage error, correct to two decimal places.
- (b) Martin and Siobhán shared a prize of €168. Martin received €72 and Siobhán received €96.
- (i) Express the ratio of Martin's share to Siobhán's share in its simplest form.
  - (ii) If Martin's share were increased by €12, how much would Siobhán receive?  
Express Siobhán's new share as a fraction of €168 in its simplest form.
- (c) €6250 was invested for three years at a fixed rate of compound interest. At the end of the first year it was worth €6500.
- (i) How much interest did it earn in the first year?
  - (ii) What was the annual rate of interest?
  - (iii) How much will the investment be worth at the end of the three years?  
Give your answer correct to the nearest euro.

4. (a) Solve  $4x - 12 = 3 - x$

(b) Solve the simultaneous equations

$$x + 5y = 26$$

$$3x - y = 14.$$

(c) Aoife and John are the same age as each other and Frank is 2 years older than them. Let Aoife's age be  $x$  years.

(i) Write an expression for Frank's age in terms of  $x$ .

(ii) Write an expression in  $x$  for the sum of their three ages.

(iii) In four years time the sum of their ages will be 65. What age is John now?

5. (a) (i) Write down the whole number factors of 36.

(ii) Write down the factors of 36 that are multiples of 6.

(b) (i) Solve the quadratic equation  $x^2 + 6x + 5 = 0$ .

(ii) Solve the quadratic equation  $x^2 + 4x - 1 = 0$ , correct to two decimal places.

(c) To calculate the time required to roast a chicken the recommendation is: "45 minutes per kilogram of weight, plus 20 minutes extra".

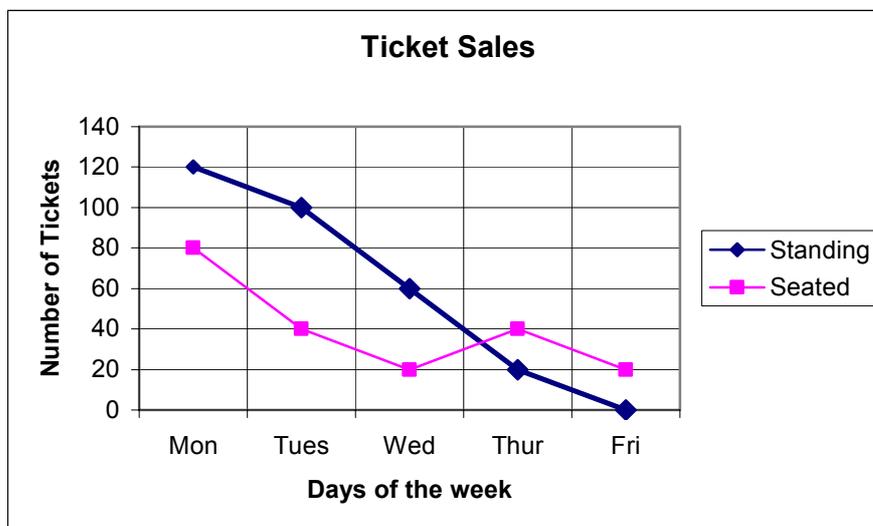
When  $x$  is the weight in kilograms, this rule can be written as:

Roasting time (in minutes) =  $45x + 20$ .

(i) How long will it take to roast a 2.2 kg chicken?  
Give your answer in hours and minutes.

(ii) If it takes an hour and twenty minutes to roast a particular chicken, calculate the weight of the chicken.

6. A music store sold tickets for a concert. Tickets were of two types: *seated* and *standing*. All the store's allocation of tickets were sold over 5 days. The graph below shows the breakdown of sales. For example, on Tuesday the store sold 40 *seated* and 100 *standing* tickets.



- How many *seated* tickets were sold on Wednesday?
  - Find the total number of tickets sold on Monday.
  - What percentage of all the tickets sold were *seated* tickets?
  - On what day was the last *standing* ticket sold?
  - Standing* tickets cost €35, and there is a booking charge of €5 added to the price. Express the booking charge as a percentage of the price the customer pays.
7. Draw the graph of the function

$$f : x \rightarrow 3x^2 + 6x - 5, \text{ for } -3 \leq x \leq 1, x \in \mathbf{R}.$$

Use your graph to estimate

- the minimum value of  $f(x)$
- the value of  $f(-2.5)$
- the roots of  $f(x) = 0$
- the range of values of  $x$  for which  $f(x)$  is increasing.

## FORMULAE FOR PAPER 1

Compound Interest and Depreciation :

$$A = P \left(1 \pm \frac{r}{100}\right)^n ; \quad P = \frac{A}{\left(1 \pm \frac{r}{100}\right)^n} .$$

The solutions to the quadratic equation  $ax^2 + bx + c = 0$  are

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$