



**Coimisiún na Scrúduithe Stáit  
State Examinations Commission**

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**LEAVING CERTIFICATE EXAMINATION, 2011**

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**MATHEMATICS – FOUNDATION LEVEL**

**PAPER 1 ( 300 marks )**

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**FRIDAY, 10 JUNE – AFTERNOON 2:00 to 4:30**

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

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**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  $\sqrt{132.9}$ , correct to two decimal places.
- (ii) Find the exact value of  $14.32 - 2.6 \div 0.4$ .
- (iii) Find  $(4.2)^3 - (2.8)^2$ , correct to one decimal place.
- (iv) A concert hall has 1200 seats.  
For one concert 1050 seats were occupied.  
What percentage of the seats were occupied?
- (v) Find the value in euro of 600 South African rand  
given that €1 = 9.674 South African rand.
- (vi) Find the number of seconds in 24 hours.
- (vii) Find the exact value of  $\frac{1}{(0.5)^2} + \frac{1}{(0.25)^2}$ .
- (viii) Write  $\frac{8}{11} - \frac{3}{7}$  as a decimal, correct to three decimal places.
- (ix) Find  $\left(\frac{37.6 + 5.92}{0.85}\right)^2$ , correct to the nearest integer.
- (x) Find  $\frac{(3.68 \times 10^5) - (2.1 \times 10^4)}{3.8 \times 10^3}$ , correct to three significant figures.

2. (a) (i) Change 6.3 kilometres to metres.
- (ii) Change 8245 grams to kilograms.
- (b) The following information was used to calculate the cost of electricity used by Emma.
- |                         |          |
|-------------------------|----------|
| Previous meter reading: | 72 010   |
| Present meter reading:  | 73 485   |
| Cost per unit:          | 15 cent. |
- (i) Calculate the number of units of electricity used between these two readings.
- (ii) Calculate the cost of the units used.
- (iii) A standing charge of €24.75 and VAT of €33.21 are added to the cost of the units. Find the total cost of Emma's electricity bill.
- (c) Sam earns €550 a week. His rate of tax is 20% and he has tax credits of €75 a week.
- (i) How much tax does Sam pay each week?
- (ii) Sam also pays other deductions of €91.50 each week. Find his weekly take-home pay.
- (iii) What percentage of his total pay does Sam take home each week?
3. (a) Seán estimates that he will get €200 by selling his DVDs. He actually gets €184.
- (i) Find the error in the estimate.
- (ii) Calculate the percentage error, correct to one decimal place.
- (b) A raffle ticket costs €1. Caoimhe pays 40 cent and Aoife pays 60 cent of the cost. They share a prize in the ratio of the amount paid by each. Caoimhe gets €160.
- (i) How much does Aoife get?
- (ii) How much is the total prize they share?
- (c) Tom bought a television set for €1100. At the end of the first year the television set is worth €935.
- (i) Find the annual rate of depreciation.
- (ii) At this rate of depreciation, how much will the television set be worth at the end of 3 years? Give your answer correct to the nearest euro.



4. (a) Solve for  $x$

$$3x - 7 = 6x + 8.$$

- (b) Solve the simultaneous equations

$$x + 2y = 4$$

$$2x + 3y = 5.$$

- (c) The cost of a blue mobile phone is €12 less than the cost of a pink mobile phone. Let  $x$  be the cost of a pink mobile phone.

- (i) Write an expression in  $x$  for the cost of a blue mobile phone.

The total cost of 2 pink and 4 blue mobile phones is €840.

- (ii) Write this information as an equation in  $x$ .

- (iii) Solve this equation to find the cost of a pink mobile phone.



5. (a) (i) Write down all the whole number factors of 24.

- (ii) List which of these numbers are multiples of 3.

- (b) (i) Solve the quadratic equation  $x^2 + 4x - 12 = 0$ .

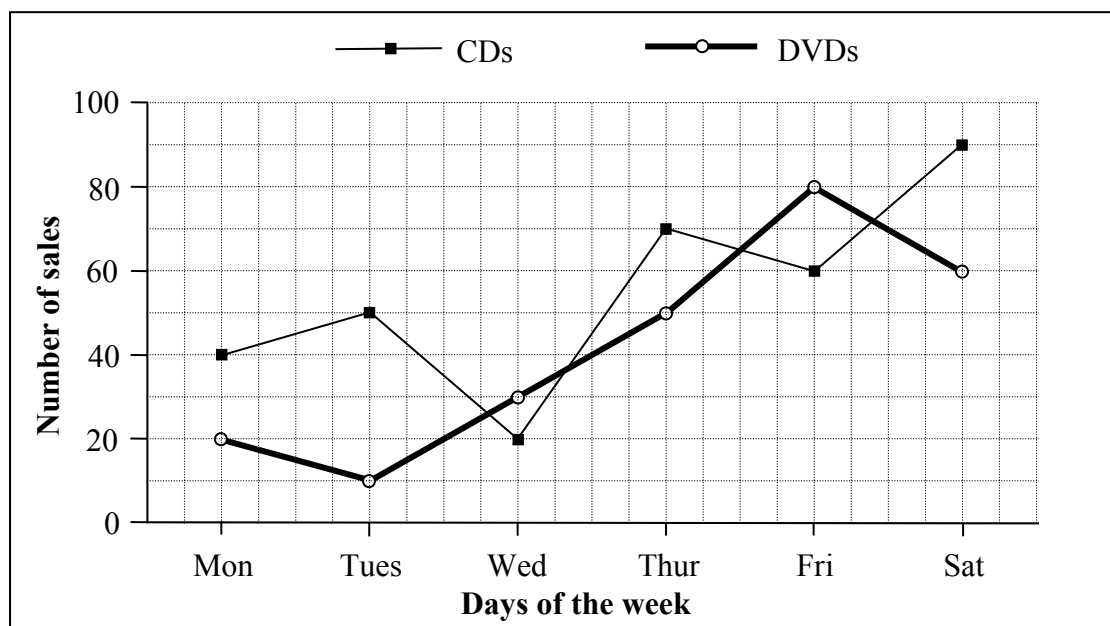
- (ii) Solve the quadratic equation  $3x^2 - 6x + 2 = 0$ , correct to two decimal places.

- (c) (i) Solve  $3x + 6 < 24$ ,  $x \in \mathbb{Z}$ .

- (ii) Solve  $6 - 4x \leq 10$ ,  $x \in \mathbb{Z}$ .

- (iii) Write down all the values of  $x$  which satisfy both of the above inequalities.

6. A music shop sells CDs and DVDs. The graph shows the number of each sold over six days. For example, on Tuesday, 50 CDs and 10 DVDs were sold.



- (i) How many CDs were sold on Friday?
- (ii) How many **more** CDs than DVDs were sold on Saturday?
- (iii) On which days of the week was the number of DVDs sold greater than the number of CDs sold?
- (iv) Find the average number of CDs sold per day.
- (v) The shop sells each CD for €8 and each DVD for €12. Find, in euro, the total amount of sales over the six days.

7. Draw the graph of the function

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

Use your graph to estimate

- (i) the value of  $f(2.5)$
- (ii) the minimum value of  $f(x)$
- (iii) the values of  $x$  for which  $f(x) = 7$
- (iv) the range of values of  $x$  for which  $f(x)$  is increasing.

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