



Coimisiún na Scrúduithe Stáit State Examinations Commission

LEAVING CERTIFICATE EXAMINATION, 2012

MATHEMATICS – FOUNDATION LEVEL

PAPER 1 (300 marks)

FRIDAY, 8 JUNE – AFTERNOON 2:00 to 4:30

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.**

1. (i) Find $(0.62)^3$, correct to two decimal places.

(ii) Find the exact value of $(5.9)^2 - \sqrt{67.24}$.

(iii) Orla spent $\frac{1}{4}$ of her money.

She then had €11.25 left.

How much money did she start with?

(iv) Find the exact value of $\frac{2\frac{1}{2} + 5 \times 3\frac{1}{2}}{4}$.

(v) In a sale, the price of clothes is reduced by 30%.

A dress sells for €84 in the sale.

What was the price before the sale?

(vi) Find the exact value of $\frac{120}{40.25 - (4.5)^2}$.

(vii) A bus journey of 175 km began at 10:30 and finished at 14:00.

Find the average speed for the journey.

(viii) Alice is 12 years old and Liam is 9 years old.

Divide 35 sweets between Alice and Liam in the ratio of their ages.

(ix) Find $\frac{(6.1 \times 10^5) - (7.2 \times 10^3)}{2.3 \times 10^4}$, correct to three decimal places.

(x) Find $\frac{(5.6 + 12.4) \times 20.75}{16.8 - 9.3}$, correct to the nearest integer.

2. (a) A glass rod 15 cm long falls and breaks into two pieces.
One piece is 63 mm long.
Find the length, in cm, of the other piece.
- (b) Shane works 7·5 hours a day and in addition has an unpaid lunch break of one hour.
He begins work at 08:30.
- (i) At what time does he finish work?
(ii) Shane works five days a week and is paid €11·80 per hour.
Calculate his pay for the five days.
(iii) He has 32% of his pay deducted for taxes.
Find his take-home pay.
- (c) A company employs 20 office workers and 325 production workers.
The company hires 6 more office workers and 39 more production workers.
- (i) After the hiring, how many workers does the company employ?
(ii) Find the percentage increase in the number of workers the company employs.
Give your answer correct to the nearest percentage.
(iii) The weekly wage for an office worker is €427·50 and for a production worker is €463.
Find the total weekly wage bill for the company, after the hiring.
3. (a) Gemma estimates that there are 300 jelly beans in a jar.
There are actually 273 jelly beans in the jar.
- (i) Find the error in the estimate.
(ii) Calculate the percentage error, correct to one decimal place.
- (b) €6300 is invested for four years at 3% per annum compound interest.
Find the total value of the investment at the end of four years.
Give your answer correct to the nearest euro.
- (c) A car travels an average of 100 km on 5·5 litres of diesel.
The car driver buys 60 litres of diesel at €1·629 per litre.
- (i) Find the cost of the diesel.
(ii) How far, to the nearest kilometre, will the car travel on the 60 litres of diesel,
assuming the average consumption of diesel?
(iii) Find the cost per kilometre, correct to the nearest cent.

4. (a) Solve for x

$$2x + 9 = 5x - 3.$$

- (b) Solve the simultaneous equations

$$2x - 3y = 7$$

$$x + 4y = 9.$$

- (c) An orange costs 5 cent more than an apple.

Let x cent be the cost of an orange.

- (i) Write an expression in x for the cost of an apple.

The total cost of 14 oranges and 12 apples is €7.98.

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

- (iii) Solve this equation to find the cost of an orange.

5. (a) (i) Write down the first five multiples of 3 and the first five multiples of 5.

- (ii) Hence, or otherwise, write down the lowest common multiple of 3 and 5.

- (b) (i) Solve the quadratic equation $x^2 - 2x - 15 = 0$.

- (ii) Solve the quadratic equation $4x^2 - 3x - 2 = 0$, correct to two decimal places.

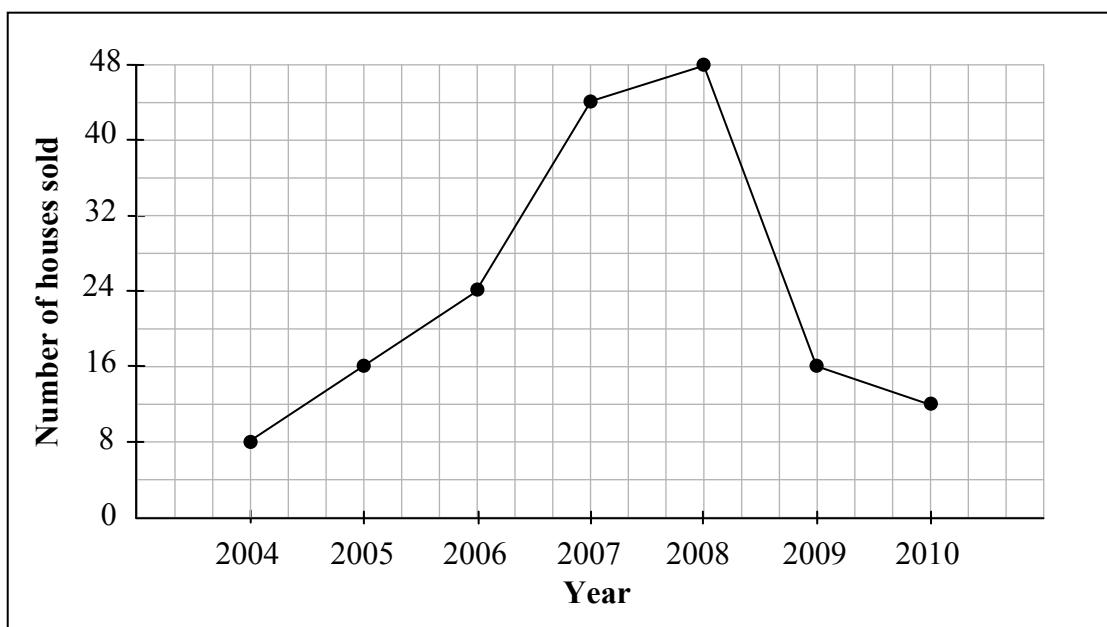
- (c) (i) Solve $4x - 7 \leq 9$, $x \in \mathbb{Z}$.

- (ii) Solve $3 - 2x < 7$, $x \in \mathbb{Z}$.

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

6. The graph below shows the number of houses sold by an estate agent each year from 2004 to 2010.

For example in 2006 the estate agent sold 24 houses.



- (i) How many houses were sold in 2007?
- (ii) In which two years were the same number of houses sold?
- (iii) What was the difference between the number of houses sold in 2008 and in 2009?
- (iv) Find the average number of houses sold per year from 2004 to 2010.
- (v) If the average number of houses sold per year by the estate agent from 2004 to 2011 was 23, how many houses did he sell in 2011?

7. Draw the graph of the function

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

Use your graph to estimate

- (i) the value of $f(-1.5)$
- (ii) the minimum value of $f(x)$
- (iii) the values of x for which $f(x) = 5$
- (iv) the range of values of x for which $f(x)$ is less than 0.

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