

LEAVING CERTIFICATE EXAMINATION, 1997

17018

MATHEMATICS - FOUNDATION LEVEL

THURSDAY, 12 JUNE - MORNING, 9.30 to 12.00

PAPER 1 (300 marks)

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

Marks may be lost if necessary work is not clearly shown.

1. (i) Find $\sqrt{56}$, correct to one decimal place.
- (ii) Find $(6.75)^3$, correct to three significant figures.
- (iii) Find $2(0.38)^4$, correct to five places of decimals.
- (iv) Find $8 + \sqrt{8}$, correct to three places of decimals.
- (v) Calculate the VAT at 21% on IR£18.
- (vi) \$1.45 = IR£1 on a certain day. Find in IR£ the value of \$1800. Give the answer correct to the nearest penny.
- (vii) A journey of 80 km began at 1110 hours and ended at 1230 hours. Find the average speed in km/h.
- (viii) Find $\frac{8}{13} + \frac{1}{9}$, correct to one decimal place.
- (ix) Find the value, correct to two decimal places of

$$\frac{(3.14 \times 10^5) + (1.28 \times 10^7)}{4.9 \times 10^7}$$

- (x) Find the value, correct to three places of decimals, of

$$\left(\frac{31.72}{8.128} - 3\right)(6.49 - 1.043)$$

OVER→

2. (a) (i) Change 8.3 km to metres.
(ii) Change 6005 cm to metres.

- (b) A person worked a 45 hour week. The rate of pay for each of the first 38 hours was IR£5.65.

The rate per hour for extra hours was IR£8.48.

Find, to the nearest penny

- (i) the total income for the week.
(ii) the tax at 27p in the IR£, if the tax-free allowance was IR£68.
(iii) the PRSI on total income at the rate of 7.25%.
(iv) the take-home pay for the week.
3. (a) A wall was measured in error to be 4.77 metres long.
Its true length was 4.24 m.
Find the error as a percentage of the true length.
- (b) IR£390 was invested at the rate of 5% per annum compound interest for three years.
Calculate the amount correct to the nearest penny.
- (c) A car now worth IR£7000 will depreciate at the rate of 15% per year.
How much will it be worth at the end of three years?
Give the answer correct to the nearest IR£.

4. (a) Solve for x

$$3x + 2 + 2x = 12.$$

- (b) Find the value of x and the value of y which satisfy the simultaneous equations

$$4x + 3y = 15$$

$$x - y = 2.$$

- (c) A person is x years old.
A friend is three years older.

Three times the sum of their ages is 81.

Write this information as an equation in x .

Solve for x .

5. (a) Write two natural numbers which when multiplied give 70.
(Do not use the number 1).

Write three natural numbers which when multiplied give 70. (Do not use the number 1).

Explain "prime number". Write down five examples.

- (b) Solve for x

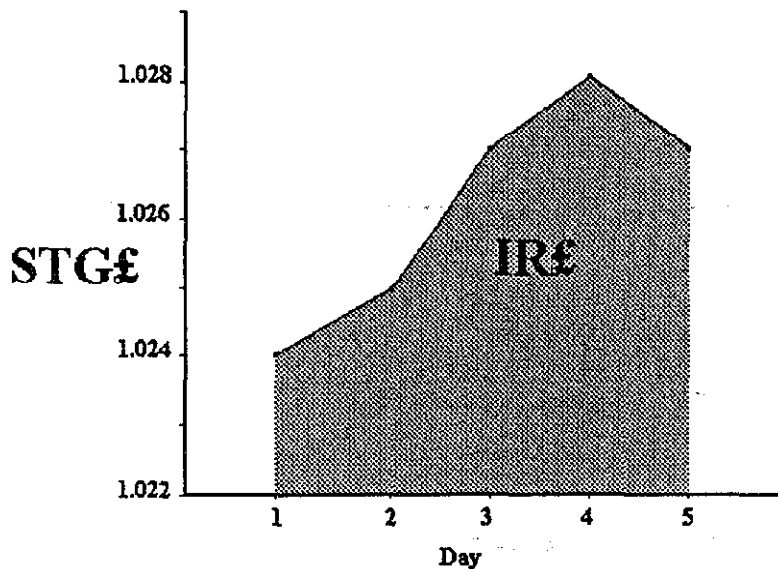
$$3x^2 - 13x + 4 = 0.$$

- (c) Solve for x , given that x is a natural number

(i) $5x + 2 < 17$

(ii) $5 - 2x \geq 1.$

6.



The graph shows the value of the IR£ (punt) against STG£ (sterling) on each of the five days of a chosen week. On day 3, for example the IR£ was worth STG £1.027.

- (i) What was the value in STG£ of the IR£1 on day 4 ?
- (ii) On what day was the IR£ at its lowest against STG£ and what was its sterling value?
- (iii) Between what two days was the largest change in the value of IR£ against sterling and what was the amount of this change ?
- (iv) What, in sterling, was IR£1000 worth on day 4 ?
- (v) What was the value, to the nearest penny, of £1000 sterling in IR£ on day 2 ?

OVER→

7.

[Use ONE sheet of graph paper for the two graphs]

(i) Draw the graph of the function, f ,

$$f: x \rightarrow x^2, \quad x \in \mathbf{R}$$

for $-2 \leq x \leq 2$.

(ii) Use the SAME x -axis and y -axis as above to draw the graph of:

$$g: x \rightarrow x^2 - 1, \quad x \in \mathbf{R}$$

for $-2 \leq x \leq 2$.

(iii) Show how to use one of the graphs to estimate the value of $\sqrt{2}$ correct to one decimal place.

FORMULAE FOR PAPER 1

Compound Interest and depreciation:

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

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

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