

AN ROINN OIDEACHAIS

LEAVING CERTIFICATE

MATHEMATICS — FOUNDATION LEVEL

SAMPLE PAPER 1995

PAPER 1 (300 marks) — 2½ hours

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 $\sqrt{87}$, correct to one decimal place.
- (ii) Find $(0.42)^4$, correct to three decimal places.
- (iii) Find $6 + \sqrt{6}$, correct to two decimal places.
- (iv) An article priced at IR£17.89 is increased in price by 8%.
Find, correct to the nearest penny, the increased price.
- (v) Find $\frac{3}{17} + \frac{1}{8}$, correct to one place of decimals.
- (vi) A person buys DM500 when the exchange rate is $DM2.38 = IR£1$.
A charge of 50p is made for this service.
How much altogether does the person pay in IR£?
- (vii) Find $(3.45)^2$, correct to three significant figures.
- (viii) Find the total bill:
423 magazines at IR£1.42 each
350 newspapers at 85p each
2220 post cards at 21p each.
- (ix) Evaluate $\frac{2.42 \times 10^6 + 1.93 \times 10^8}{8.6 \times 10^8}$ giving your answer correct to two significant figures.
- (x) Find, correct to three decimal places:
 $(19.42 \times 2.3132 + 4) \div (16.841 - 4.004)$.

2. (a) Change to metres

(i) 4.2 km

4878 (ii) 483 cm.

(b) An employee worked a 44 hour week.
For each of the first 38 hours she was paid at the rate of IR£4.55 per hour.
For each hour after this she was paid at the rate of IR£6.83 per hour.

Calculate

(i) the gross income for the week.

(ii) the PRSI to the nearest penny to be paid if PRSI is paid at 7.25% of gross pay.

(iii) the tax to be paid on gross salary if the tax free allowance amounts to IR£58 per week and the tax rate is 28%.

(iv) her net take-home pay.

3. (a) A piece of cloth is estimated to be 3 m long.
It is in fact 2.87 m long.

Find

(i) the error.

(ii) the percentage error correct to 1 decimal place.

(b) IR£520 are invested at 7% per annum compound interest.

Calculate the amount, correct to the nearest IR£, after 5 years.

(c) A car depreciates in value at 15% per annum.

What sum of money was paid for a car three years ago, if its current value is IR£7800? Give your answer correct to the nearest IR£.

4. (a) Solve the equation $2x + 4 = 5$.

(b) Solve the simultaneous equations

$$3x + 2y = 17$$

$$x - y = 4.$$

(c) Sean had IR£ x last week.

This week, his grandfather gave him IR£24.50.

Write down how much he has now, assuming he spent nothing.

The amount Sean has now is three times as much as he had last week. Write an equation in x to show the information and find the value of x .

5. (a) Find the prime factors of 42.

(b) Solve the quadratic equation

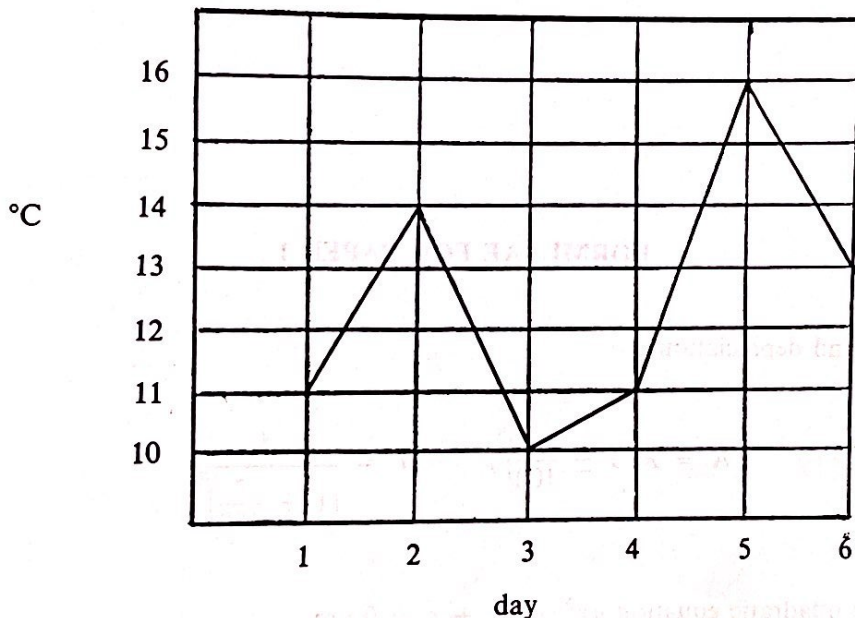
$$2x^2 - 7x + 3 = 0.$$

(c) Solve

(i) $2x + 3 > 5$

(ii) $-3x + 2 \leq 8$

6. The temperature in degrees centigrade ($^{\circ}\text{C}$) was measured each day at noon over a six day period. The information recorded is shown on the graph.



From the graph

- (i) find the temperature at noon on day 1.
- (ii) find the maximum temperature measured at noon in the six day period.
- (iii) find the range in temperature recorded at noon from day 2 to day 5 inclusive.
- (iv) calculate the mean noon temperature over the six days. Give your answer correct to one place of decimals.

7. Draw the graph of the function

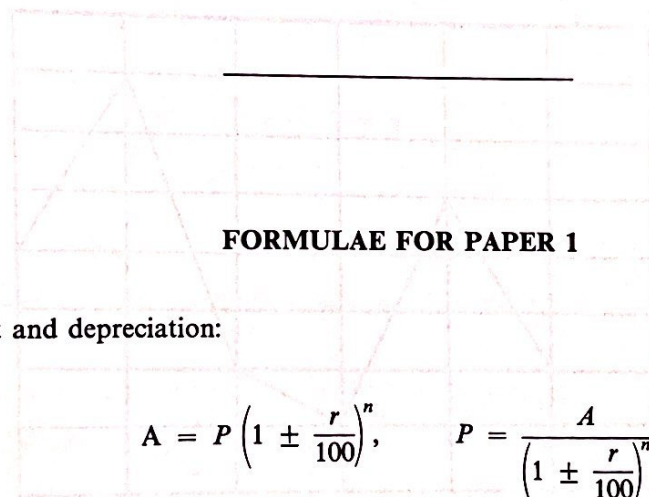
$$f: x \rightarrow x^2 - 2x - 5$$

for the values

$$-2 \leq x \leq 4, \quad x \in \mathbf{R}.$$

Use your graph to find as accurately as possible:

- (i) $f(2.5)$.
- (ii) the values for x for which $f(x) = 1$.
- (iii) the interval of x for which $f(x)$ is increasing.
- (iv) the minimum value of $f(x)$.



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

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

