AN ROINN OIDEACHAIS
(Department of Education)

BRAINSE NA SCRÚDUITHE
(Examinations Branch)

Do   Gach Feitheoir
To   Each Superintendent

Scrúduithe Teastais na nGairmchúrsaí Lae 1979

(Day Vocational Certificate Examinations 1979)

Matamaitic - Páipéar 1

(Mathematics - Paper 1)

Tá dhá earráid sa Leagan Béarla den scrúdpháipéar don ábhar seo. Iarrtar
ort na ceartuithe cuí, mar a léirítear thíos, a chur in iúl dos na
hiarrthóirí

Ceist 1   Ba chóir "Maintenance" a chur isteach in ionad "Maintainance"

Ceist 8(e)   Ba chóir "Was" a chur isteach in ionad "Were"

There are two errors in the English Version of the examination paper for
this subject. Please advise the candidates of the necessary corrections
as set out hereunder

Question 1   "Maintenance" should be inserted instead of "Maintainance"

Question 8(e)   "Was" should be inserted instead of "Were"

S. Ó Breacáin.

AN ROINN OIDEACHAIS   G.324

BRAINSE NA SCRÚDUITHE

DAY VOCATIONAL CERTIFICATE EXAMINATIONS, 1979

MATHEMATICS - PAPER 1

MONDAY, 11 JUNE - 9.30 - 11.30

INSTRUCTIONS

(a) Answer any <u>five</u> questions.

(b) All working must be clearly set out in your answer book.

(c) Mathematical Tables and squared paper are available from the Superintendent.

(d) All questions carry equal marks.

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1. A firm employed the following staff. A General Manager, an Assistant General Manager, and 5 Heads of Departments. Each department employed 16 Executives and 7 Typists. There were also a Porter and 12 Maintainence Staff employed by the firm.

The following weekly salaries were paid:-

General Manager:	£290
Assistant General Manager:	£230
Head of Department:	£160
Executive:	£120
Typist:	£60
Porter:	£80
Maintainence Staff:	£50

Calculate   (i)   The number of people employed by the firm.

(ii) The total weekly salary bill for the firm.

(iii) If an increase of 8% is awarded calculate the new weekly salary bill for the firm.

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2. (a) Evaluate using logarithms or a slide rule

$$\frac{597 \times 3\cdot09}{70\cdot8}$$

(b) Write in your answer book the next TWO terms of each of the following in order to maintain the same sequence patterns:-
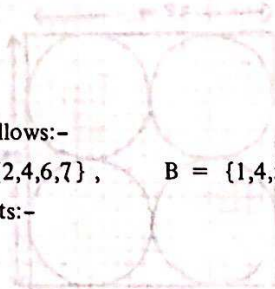
(i) 4,5,9,14,23, ...

(ii) 1,3,6,10,15, ...

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3. (a) The sets U, A, B, C, are given as follows:-

$U = \{1,2,3,4,5,6,7,8,9\}$, $A = \{2,4,6,7\}$, $B = \{1,4,5,9\}$, $C = \{4,5,6,8\}$.

List the elements of the following sets:-

(i) $B \setminus C$,

(ii) $C \cap A$,

(iii) $A \cap B \cap C$,

(iv) $(B \setminus C)'$,

(v) $B \cup (C \cap A)$.

(b) In a class of 30 students, 22 play football, 14 play hurling and 9 play both. Illustrate this information on a Venn Diagram and from this indicate the number who play neither.
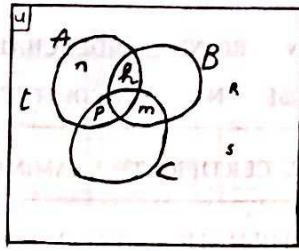
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4. (a) Find the solution set of:-

$$4 + 2(3x - 5) - 5(x - 4) = 3(2x - 3) - 4(5x - 2)$$

(b) Divide:- $8x^3 + 2x^2 - 39x + 30$ by $4x - 5$ and show your work in your answer book.
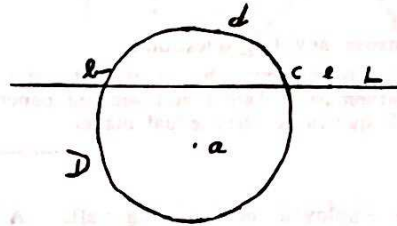
OVER →

5. (a)

Three lines A,B,C are represented by a Venn Diagram as illustrated.   Draw the lines A,B,C and mark the points *h, m, n, p, r, s, t.*
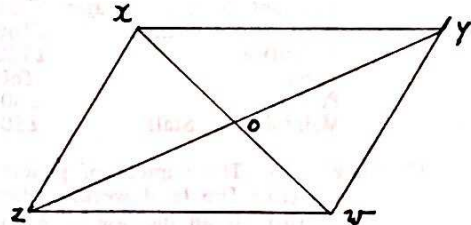
(b) In the diagram

L is a line,
D is a circle and *a,b,c,d,e* are points.

Draw a Venn Diagram to illustrate this.

6. (a) *xywz* is a parallelogram as in diagram.   The diagonals *xw* and *zy* intersect at *o*.

Find: (i) The image of *z* by the translation $\vec{zo}$.
   (ii) The image of the triangle *xoz* by parallel projection on the line segment [*xw*] parallel to the line segment [*zy*].
   (iii) The image of the triangle *woy* by the reflection in the point *o*.
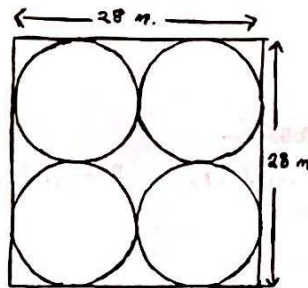   (iv) The image of the line segment [*xz*] by the translation $\vec{zw}$.

(b) Construct the image of the parallelogram *xywz* under the translation $\vec{xz}$.

7. Given a square sheet of metal of length 28 m.   A sheet-metalworker was asked to cut four equal circular shapes from the metal (see diagram).
Calculate the area of metal remaining after the circles have been cut.
Let $\pi = \frac{22}{7}$

8. The enclosed graph shows the number of workers employed in a factory on 31st December of each year from 1970 to 1978.

Answer the following questions:-

(a) What was the largest annual increase in the number of workers employed and in which year did this occur ?

(b) In which year did the factory employ the greatest number of workers ?

(c) How many workers were employed at the end of 1976 ?

(d) What was the increase in the number of workers employed in the factory between the end of 1970 and the end of 1978 ?

(e) In which years were there a decrease in the number of workers employed ?

(f) What was the percentage increase in the number of workers employed between 1971 and 1972 ?

YEARS