

AN ROINN OIDEACHAIS
BRAINSE NA SCRÚDUITHE

G.324

DAY VOCATIONAL CERTIFICATE EXAMINATIONS, 1980

MATHEMATICS - PAPER 1

FRIDAY, 13 JUNE - 9.30 - 11.30

INSTRUCTIONS

- (a) Answer any five 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.

1. A car dealer buys six cars at an average price of £2,500 each. He sells them as follows:
1 @ £2,000, 1 @ £2,200, 1 @ £2,700, 1 @ £3,000, 1 @ £3,200 and 1 @ £3,400

(a) Calculate:-

- (i) His profit on the complete transaction.
(ii) His percentage profit.

- (b) If he pays tax at the rate of 35p in the £1 on the first £1,000 profit and 45p in the £1 on the remainder, calculate his total tax bill.

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

$$\frac{45.6 \times 9.84}{278}$$

- (b) Divide 131.6342 by 4.82.

3. The sets U, A, B, C are given as follows:

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

Illustrate the above on a Venn Diagram and from your Diagram list the elements of the following sets.

- (i) $B \setminus A$
(ii) $A \cup B \cup C$
(iii) $A \cap B \cap C$
(iv) $(A \cup B \cup C)'$
(v) $(A \cup B) \setminus C$
(vi) $C \cup (B \setminus A)$.

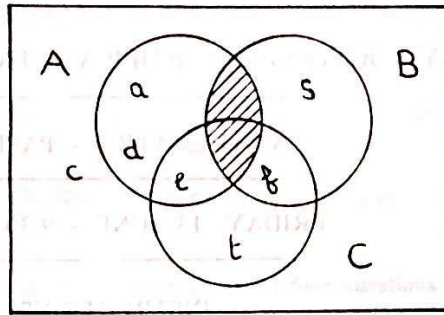
4. (a) Find the solution set of

$$5 - 2(4x - 3) + 3(x + 2) = 4(7 - 2x) - (5 - x)$$

- (b) Add $3a + 2b - c$ to $2a - 3b + 2c$ and multiply your answer by $a - 2c$.

OVER →

5. (a) Three lines A, B, C are represented by a Venn Diagram as illustrated. Draw the lines A, B, C and mark in the points a, c, d, e, f, s, t .



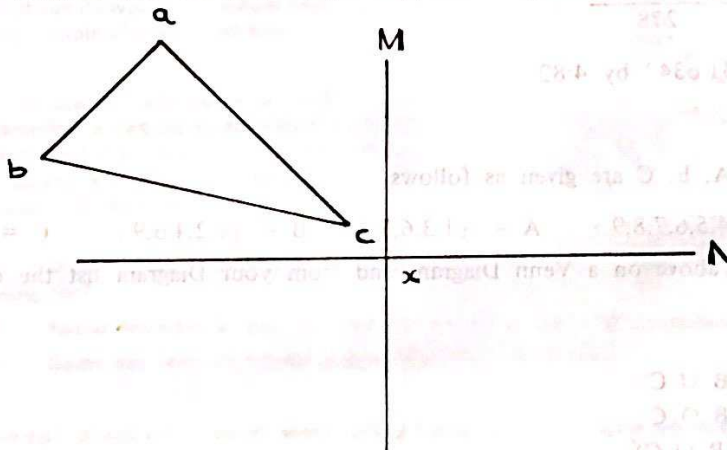
- (b) (i) Add 2314_{seven} , 1652_{seven} and 2455_{seven} .
(ii) Convert 423_{five} to base 10.

6. A survey was carried out in a class of twenty five students to ascertain how the pupils travelled to school. The results of the survey are shown in this table.

Bike	ordinary bus	car	walked	school bus
5	4	6	2	7

Represent this information on a pie chart.

7. Copy the diagram into the graph paper supplied (Note: $M \perp N$).



Then find, accurately and neatly, the image of the triangle by the rotation $S_n \circ S_m$.
Construct, using a straight edge and compass, the bisector of the image of $[ab]$.

8. A rectangular reservoir supplied water to a town. It is 40 m long, 30 m wide and 50 m in depth.
For how many hours will the reservoir supply the town with water if the town uses water at the rate of 500 litres per minute?
(1000 litre = 1 m^3).