

General Paper 1 2007 Exam Solutions

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Graduate Bsc (Hons) MathsSci (Open) GIMA

1a. Given $4.27 - 1.832$

$$\begin{array}{r} \overset{3}{4}.\overset{1}{2}\overset{6}{7}\overset{1}{0} \\ 1.832 \\ \hline 2.438 \end{array}$$

b. Given 6.53×40

$$\begin{array}{r} 65.3 \\ \times 4 \\ \hline 261.2 \\ 21 \end{array}$$

c. $372 \div 8$

$$\begin{array}{r} 46.5 \\ 8 \overline{)372.0} \end{array}$$

d. Given $5 \times 4\frac{1}{3}$

$$5 \times \frac{13}{3} = \frac{65}{3} = 21\frac{2}{3}$$

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- 2 Given that the particle is radioactive for 2.3×10^{-4} seconds.

Writing in full we get: 0.00023 seconds

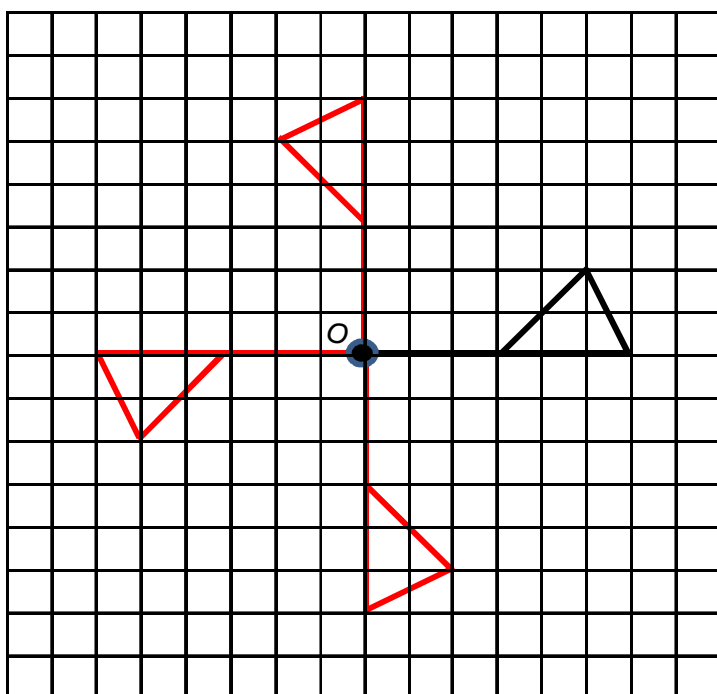
3. Given the table of exercises and times.
All the possible combinations of 3 exercises that give a minimum exercise time of 90 mins are:

Weights	Dance	Running	Cycling	Swimming	Total Time
		✓	✓	✓	95 minutes
	✓		✓	✓	115 minutes
✓			✓	✓	90 minutes
✓	✓			✓	100 minutes
	✓	✓		✓	105 minutes
	✓	✓	✓		90 minutes

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4. The red lines have been added to produce quarter turn symmetry.



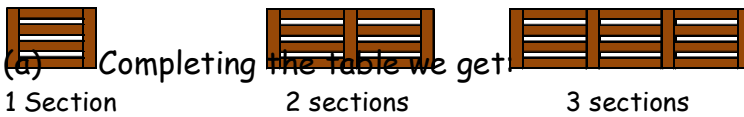
5. Given the two temperatures of the liquids -11°C and 23°C .

The temperature between them is $23 - (-11) = 23 + 11 = 34^{\circ}\text{C}$.

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6. Given the diagram of the wooden sections.



(a) Completing the table we get:

Number of sections (s)	1	2	3	4	5		12
Number of lengths of wood (w)	6	11	16	21	26		61

(b) Steps for working out the rule:

1. Difference is 5
2. Part of rule is $w = 5s$
3. Correction factor, so that the rule works is, add on 1

5 × 1 + 1 = 6

Full rule is: $w = 5s + 1$

(c) Given there are 81 lengths of wood.

Using the formula in part (b) we can calculate the number of sections:

$$\begin{aligned} 81 &= 5s + 1 \\ 5s &= 81 - 1 \\ 5s &= 80 \\ s &= 80 \div 5 = 16 \text{ sections} \end{aligned}$$

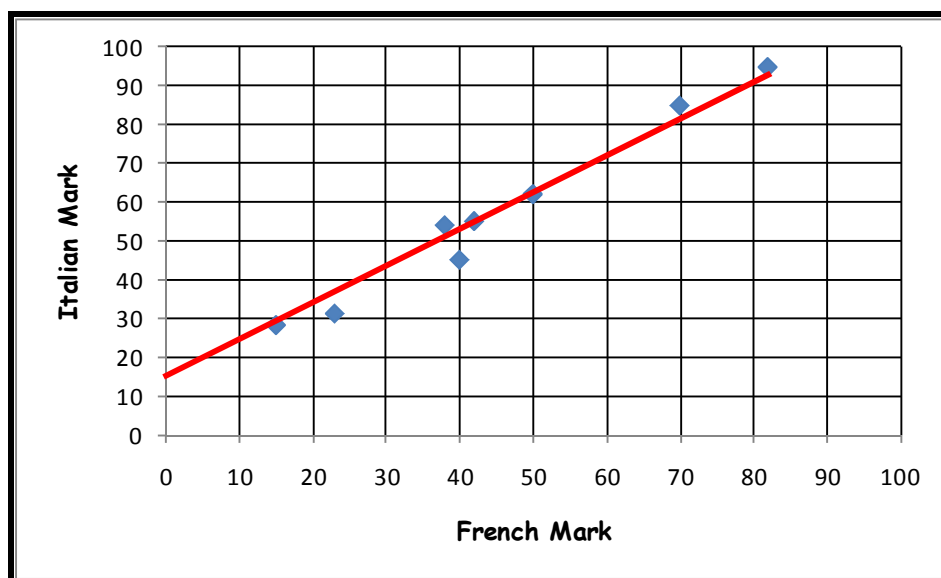
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7. Given the table and drawing the scattergraph with a best fit line we get:

Pupils	A	B	C	D	E	F	G	H
French Mark	15	23	50	38	40	42	70	82
Italian Mark	28	31	62	54	45	55	85	95

(a) and (b)



- (c) A pupil who scored 65 in his French exam would be expected to score 71 his Italian exam.

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8. Given Pamela sees a bracelet costing £65.
The jeweller gives her a 5% discount.

She will pay:

$$10\% \rightarrow \text{£}6.50$$

$$5\% \rightarrow \text{£}3.25$$

$$\text{Price paid} \rightarrow \text{£}65 - \text{£}3.25 = \text{£}61.75$$

9. Given the table of Office Supplies.

Office Supplies	
Blue Folders	7 boxes
Green Folders	11 boxes
Pink Folders	3 boxes
Yellow Folders	4 boxes
Total	25 boxes

- (a) Probability of the first box containing a pink folder is:

$$P(\text{pink}) = \frac{\text{number of boxes pink}}{\text{total number of boxes}} = \frac{3}{25}$$

- (b) Given the first box contained green folders.

The probability that the next will be blue is:

$$P(\text{blue}) = \frac{\text{number of boxes blue}}{\text{total number of boxes}} = \frac{7}{24}$$

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10. Given there are 720 pupils in Laggan High School.

The ratio of boys to girls is 5:4.

To find how many girls in the school we have:

Number of shares $5 + 4 = 9$

Each share is worth $9 \overline{)720}^{80}$

Number of girls in school $4 \times 80 = 320$