

QUESTION NO.	SOLUTION	MARKS
2. (a)	$\frac{4x+5}{5} + \frac{x-3}{4} = -1$ $\frac{16x+20+5x-15}{20} = -1$ $21x + 5 = -20$ $21x = -20 - 5$ $21x = -25$ $x = -\frac{25}{21} \text{ or } -1\frac{4}{21}$	M1 for finding common multiple of 4 and 5 M1 for clearing fraction M1 for solving M1 for simplification A1 for $-\frac{25}{21}$ or $-1\frac{4}{21}$
(b)(i)	$12 \equiv 120$ $25 \equiv 120 \times \frac{25}{12}$ $= 10 \times 25$ $= 250 \text{ girls}$	M1 for the equivalent M1 for ratio M1 for simplifying A1 for 250 girls
(ii)	$120 + 250 = 370 \text{ boy and girls}$ <u>ALITER</u>	M1 for adding A1 for 370 boys and girls
(i)	Total Ratio = $12 + 25 = 37$ Total No = $\frac{37}{12} \times 120$ $= 37 \times 10$ $= 370$	M1 M1 M1
(ii)	No of girls = $370 - 120$ $= 250$	M1 A1
(ii)	Total No of Boys and girls = 370	A1

QUESTION NO.	SOLUTION	MARKS
2. (c)	$(8x^2 y^3) \left(\frac{3}{8} xy^4\right)$ $= 8 \times x \times x \times y \times y \times y \times \frac{3}{8} \times x \times y \times y \times y \times y$ Accept $8 \times x^2 \times y^3 \times \frac{3}{8} \times x \times y^4$ $= 3x^3 y^7$	M1 for expanding, A1 for all correct M1 for simplifying A1 for $3x^3 y^7$ [15 Marks]

QUESTION NO.	SOLUTION	MARKS
3. (a)	$n(\mu) = 60$ $\begin{aligned} x - 15 + 15 + x + 9 - 15 &= 60 \\ 2x - 6 &= 60 \\ 2x &= 60 + 6 \\ 2x &= 66 \\ x &= 33 \\ n(M) &= 15 + 33 - 15 + 9 \\ &= 33 + 9 \\ &= 42 \end{aligned}$ <u>ALITER</u> $n(\mu) = 60$ $\begin{aligned} x + 15 + x + 9 &= 60 \\ 2x + 24 &= 60 \\ 2x &= 60 - 24 \\ 2x &= 36 \\ x &= 18 \\ n(S) &= 18 + 15 = 33 \\ n(M) &= 18 + 9 + 15 = 42 \end{aligned}$	B2 $(-\frac{1}{2} ee)$ for diagram With correct entries (x, 15, x + 9, 60) <i>n for all -1/2 but x, 15, x+9, 60 are all errors -1/2</i> M1A1 for adding and equating to 60 M1 for solving A1 for x = 33 M1 A1 for 42
		B2 $(-\frac{1}{2} ee)$ for correct diagram with correct entries (x, 15, x + 9, 60) M1 for adding and equating to 60 M1 for solving A1 for 18 M1 for adding A1 for 33 A1 for 42

ALITER

$$n(\mu) = n(S) + n(M) - n(S \cap M)$$

$$60 = x + x + 9 - 15 \quad B_2 \quad M1A1$$

$$2x = 60 + 6 \quad M1$$

$$2x = 66$$

$$x = 33 \quad A1$$

$$n(M) = 33 + 9 \quad M1$$

$$= 42 \quad A1$$

QUESTION	SOLUTION	MARKS
(a)(ii)	$n(S) \text{ only} = 33 - 15 = 18$ $n(M) \text{ only} = 18 + 9$ $= 27$ $n(\text{Exactly one subject}) = 18 + 27 = 45$ $P(\text{Exactly one subject}) = \frac{45}{60}$ $= \frac{3}{4}$	B1 for either 18 or 27 B1 for 45 M1 A1 for $\frac{3}{4}$
(b)	$xy + 6x + 3y + 18$ $= x(y+6) + 3(y+6)$ $= (x+3)(y+6)$	M1 (one factor correct) A1 for all correct A1(x+3)(y+6) [15 Marks]

QUESTION NO.	SOLUTION	MARKS
4. (a)	$250\% = \frac{250}{100}$ $= \frac{25}{10}$ $= \frac{5}{2} \text{ or } 2\frac{1}{2}$	M1 ratio M1 simplifying A1 for $\frac{5}{2}$ or $2\frac{1}{2}$
(b)	$180 - 4x + 107 = 3x$ $287 = 7x$ $x = \frac{287}{7}$ $= 41^\circ$	B1 for $180 - 4x$ M1 for equating M1 for solving A1 for $x = 41^\circ$
(c)	$2 \div \left(\frac{15}{64} \div \frac{6}{7}\right)$ $= 2 \div \left(\frac{15}{64} \times \frac{7}{6}\right)$ $= 2 \div \left(\frac{15 \times 7}{64 \times 6}\right)$ $= 2 \times \frac{64 \times 6}{15 \times 7}$ $\Rightarrow \frac{2 \times 64 \times 2}{5 \times 7}$ $= \frac{256}{35} \text{ or } 7\frac{11}{35}$	M1 for multiplying by $\frac{7}{6}$ A1 for $\frac{15 \times 7}{64 \times 6}$ M1 for multiplying by $\left(\frac{64 \times 6}{15 \times 7}\right)$ M1 for simplifying A1 for $\frac{256}{35}$ or $7\frac{11}{35}$
(d)	$q = \begin{pmatrix} 7 \\ -1 \end{pmatrix}, r = \begin{pmatrix} 4 \\ -5 \end{pmatrix}$ $q + r = \begin{pmatrix} 7 \\ -1 \end{pmatrix} + \begin{pmatrix} 4 \\ -5 \end{pmatrix}$ $= \begin{pmatrix} 7 + 4 \\ -1 - 5 \end{pmatrix}$ $= \begin{pmatrix} 11 \\ -6 \end{pmatrix}$	M1 for substituting M1 for simplifying, one component correct A1 for $\begin{pmatrix} 11 \\ -6 \end{pmatrix}$

[15 Marks]

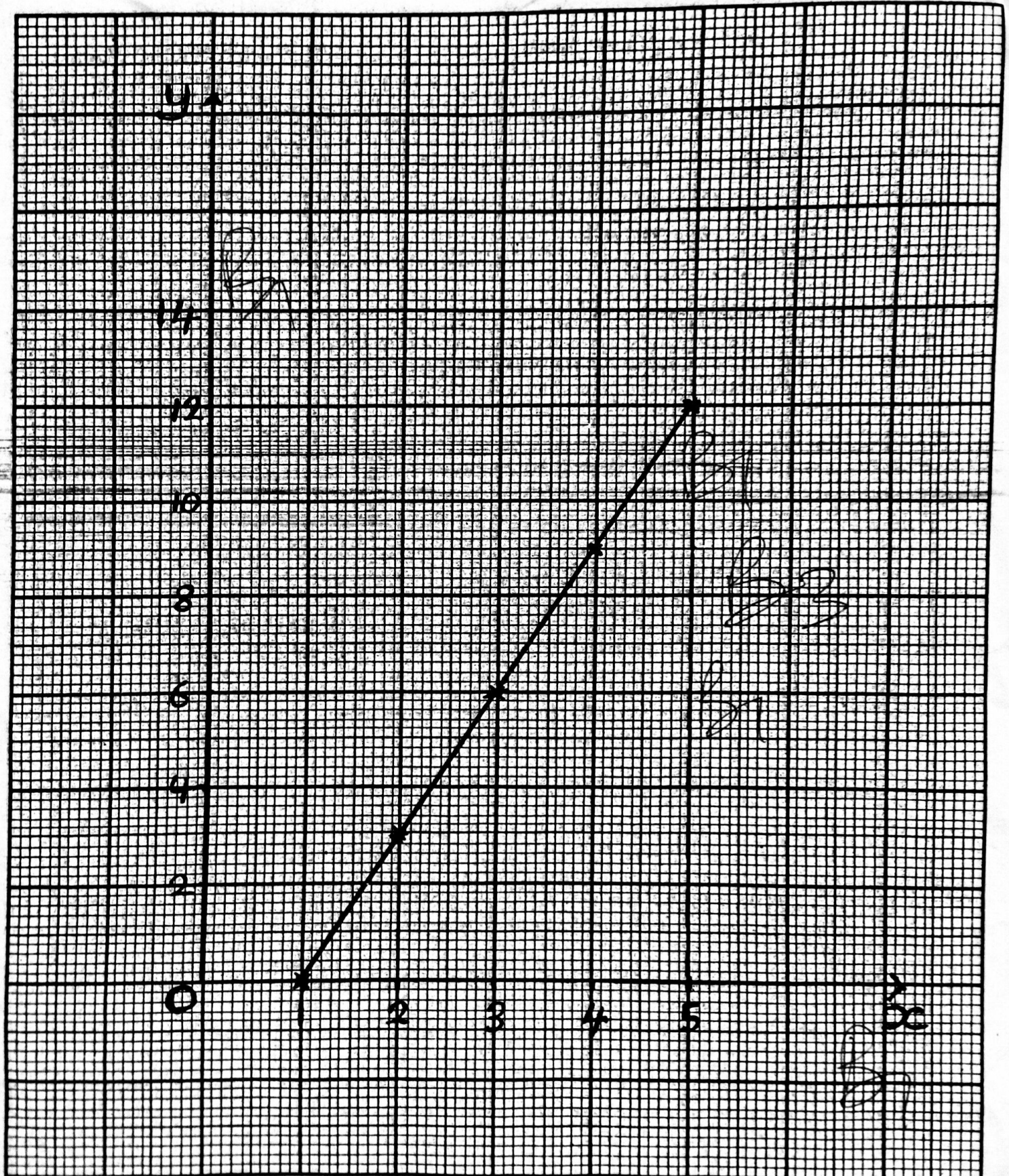
QUESTION NO.	SOLUTION	MARKS
(5) (a) (i)	Graph	B1B1($-\frac{1}{2}ee$) for axes
(ii)	Plotting points	B3 ($-1ee$) for plotted points
(iii)	Joining points with straight line	B1 for straight line
(iv)	Gradient: $\frac{12-0}{5-1}$ or equivalent $= \frac{12}{4}$ $= 3$	B1 for right-angled triangle B1 for 3
(v)	$\frac{y-6}{x-3} = 3$ or equivalent $y - 6 = 3(x - 3)$ $y - 6 = 3x - 9$ $y = 3x - 3$	M1 M1 A1
(b)	$32 = 2^5$ $8 = 2^3$ $4 = 2^2$ $2 = 2^1$	B2($-\frac{1}{2}ee$) for the exponents
	$32 \times 8 \times 4 \times 2 = 2^5 \times 2^3 \times 2^2 \times 2^1$ $= 2^{5+3+2+1}$ $= 2^{11}$	M1 (applying law of indices) A1 for 2^{11} [15 Marks]

5

(To be fastened together with other answers to paper)

Name.....

Index Number.....



QUESTION NO.	SOLUTION				MARKS
6. (a)	Marks	Tally	Freq (f)	fx	B1 for tally (Any two correct) M1A2(-$\frac{1}{2}$ ee) for f Any 2 correct M1A2(-$\frac{1}{2}$ ee) for fx Any 2 correct B1 for $\Sigma f = 25$ M1A1 for $\Sigma fx = 121$
1	/	1	1		
2	////	4	8		
3	///	3	9		
4	////	4	16		
5	//	2	10		
6	//	2	12		
7	### //	7	49		
8	//	2	16		
		$\Sigma f = 25$	$\Sigma fx = 121$		
(b)	(i) mode = 7 marks				B1 for 7
	(ii) median = 5 marks				M1A1 for 5
	(iii) Mean = $\frac{\Sigma fx}{\Sigma f}$				M1A1
	$= \frac{121}{25}$				
					[15 Marks]