

MODULE
MATHEMATICS FORM 5
CHAPTER 4: MATRIX

	1. $2p - q = 10$ $5p - 4q = 34$	2. $3m + 2n = 4$ $4m + 5n = 17$	3. $3p - 8q = 65$ $2p - 7q = 55$	4. $4x - 3y = 26$ $2x + y = -7$
1.	$\begin{pmatrix} 2 & -1 \\ 5 & -4 \end{pmatrix} \begin{pmatrix} p \\ q \end{pmatrix} = \begin{pmatrix} 10 \\ 34 \end{pmatrix}$	$\begin{pmatrix} 3 & 2 \\ 4 & 5 \end{pmatrix} \begin{pmatrix} m \\ n \end{pmatrix} = \begin{pmatrix} 4 \\ 17 \end{pmatrix}$	$\begin{pmatrix} & \\ & -7 \end{pmatrix} \begin{pmatrix} p \\ q \end{pmatrix} = \begin{pmatrix} 65 \\ \end{pmatrix}$	
2.	$\begin{pmatrix} p \\ q \end{pmatrix} = \begin{pmatrix} 2 & -1 \\ 5 & -4 \end{pmatrix}^{-1} \begin{pmatrix} 10 \\ 34 \end{pmatrix}$	$\begin{pmatrix} m \\ n \end{pmatrix} = \begin{pmatrix} 3 & 2 \\ 4 & 5 \end{pmatrix}^{-1} \begin{pmatrix} 4 \\ 17 \end{pmatrix}$	$\begin{pmatrix} p \\ q \end{pmatrix} = \begin{pmatrix} & \\ & -7 \end{pmatrix}^{-1} \begin{pmatrix} 65 \\ \end{pmatrix}$	
3.	$\begin{pmatrix} p \\ q \end{pmatrix} = \frac{1}{2(-4) - (-1)(5)} \begin{pmatrix} -4 & 1 \\ -5 & 2 \end{pmatrix} \begin{pmatrix} 10 \\ 34 \end{pmatrix}$	$\begin{pmatrix} m \\ n \end{pmatrix} = \frac{1}{3(5) - 2(4)} \begin{pmatrix} 5 & -2 \\ -4 & 3 \end{pmatrix} \begin{pmatrix} 4 \\ 17 \end{pmatrix}$		
4.	$\begin{pmatrix} p \\ q \end{pmatrix} = \frac{1}{-3} \begin{pmatrix} -4 & 1 \\ -5 & 2 \end{pmatrix} \begin{pmatrix} 10 \\ 34 \end{pmatrix}$	$\begin{pmatrix} m \\ n \end{pmatrix} = \frac{1}{7} \begin{pmatrix} 5 & -2 \\ -4 & 3 \end{pmatrix} \begin{pmatrix} 4 \\ 17 \end{pmatrix}$	$\begin{pmatrix} p \\ q \end{pmatrix} = \frac{1}{-7} \begin{pmatrix} -7 & \\ & 3 \end{pmatrix} \begin{pmatrix} 65 \\ 55 \end{pmatrix}$	
5.	$\begin{pmatrix} p \\ q \end{pmatrix} = \frac{1}{-3} \begin{pmatrix} -4 \times 10 + 1 \times 34 \\ -5 \times 10 + 2 \times 34 \end{pmatrix}$	$\begin{pmatrix} m \\ n \end{pmatrix} = \frac{1}{7} \begin{pmatrix} 5 \times 4 + (-2) \times 17 \\ -4 \times 4 + 3 \times 17 \end{pmatrix}$		
6.	$\begin{pmatrix} p \\ q \end{pmatrix} = \frac{1}{-3} \begin{pmatrix} -6 \\ 18 \end{pmatrix}$ $\begin{pmatrix} p \\ q \end{pmatrix} = \begin{pmatrix} 2 \\ -6 \end{pmatrix}$ $\therefore p = 2$ $\therefore q = -6$	$\begin{pmatrix} m \\ n \end{pmatrix} = \frac{1}{7} \begin{pmatrix} -14 \\ 35 \end{pmatrix}$ $\begin{pmatrix} m \\ n \end{pmatrix} = \begin{pmatrix} -2 \\ 5 \end{pmatrix}$ $\therefore m = -2$ $\therefore n = 5$		

	5. $3m + n = -3$ $8m + 4n = 4$	6. $8x + 3y = 4$ $2x + y = 2$	7. $9m + 2n = 3$ $4m + n = 1$	8. $6x - y = 9$ $4x - y = 11$
1.	$\begin{pmatrix} 3 & 1 \\ 8 & 4 \end{pmatrix} \begin{pmatrix} m \\ n \end{pmatrix} = \begin{pmatrix} -3 \\ 4 \end{pmatrix}$	$\begin{pmatrix} 8 & 3 \\ 2 & 1 \end{pmatrix} \begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} 4 \\ 2 \end{pmatrix}$		
2.	$\begin{pmatrix} m \\ n \end{pmatrix} = \begin{pmatrix} 3 & 1 \\ 8 & 4 \end{pmatrix}^{-1} \begin{pmatrix} -3 \\ 4 \end{pmatrix}$	$\begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} 8 & 3 \\ 2 & 1 \end{pmatrix}^{-1} \begin{pmatrix} 4 \\ 2 \end{pmatrix}$		
3.	$\begin{pmatrix} m \\ n \end{pmatrix} = \frac{1}{3(4) - 1(8)} \begin{pmatrix} 4 & -1 \\ -8 & 3 \end{pmatrix} \begin{pmatrix} -3 \\ 4 \end{pmatrix}$			
4.	$\begin{pmatrix} m \\ n \end{pmatrix} = \frac{1}{4} \begin{pmatrix} 4 & -1 \\ -8 & 3 \end{pmatrix} \begin{pmatrix} -3 \\ 4 \end{pmatrix}$			
5.	$\begin{pmatrix} m \\ n \end{pmatrix} = \frac{1}{4} \begin{pmatrix} 4 \times (-3) + (-1) \times 4 \\ -8 \times (-3) + 3 \times 4 \end{pmatrix}$			
6.	$\begin{pmatrix} m \\ n \end{pmatrix} = \frac{1}{4} \begin{pmatrix} -16 \\ 36 \end{pmatrix}$ $\begin{pmatrix} m \\ n \end{pmatrix} = \begin{pmatrix} -4 \\ 9 \end{pmatrix}$ $m = -4$ $\therefore n = 9$			

	9. $2p - q = 11$ $3p - 4q = 34$	10. $3p - q = 21$ $2p + \frac{1}{3}q = 8$	11. $3x + 8y = 3$ $x + 4y = -1$	12. $2s + 3t = -8$ $s + \frac{2}{3}t = -\frac{7}{3}$
1				
2				
3				
4				
5				
6				

	13. $4x + 2y = -4$ $7x + 3y = -3$	14. $7x + 2y = -3$ $8x + 3y = -2$	15. $9v - 7w = 11$ $3v - 2w = 4$	16. $2m + 2n = -18$ $-5m + 3n = -5$
1				
2				
3				
4				
5				
6				