

**MODUL 1**  
**MATEMATIK SPM "ENRICHMENT"**  
**TOPIC : SIMULTANEOUS LINEAR EQUATIONS**  
**TIME : 2 HOUR**

1. Calculate the values of m and n that satisfy the simultaneous linear equations:  
 $4m + n = 2$  and  $2m - 3n = 8$  [ 4 marks]

2. Calculate the values of m and n that satisfy the simultaneous linear equations:  
 $\frac{1}{2}m - 3n = 10$   
 $5m + 6n = -8$  [ 4 marks]

3. Calculate the values of m and n that satisfy the simultaneous linear equations:  
 $2m - n = 7$   
 $m - 2n = 5$  [ 4 marks]

4. Calculate the values of p and q that satisfy the simultaneous linear equations:

$$p + 2q = 6$$

$$\frac{3}{2}p - q = -7$$

[ 4 marks]

5. Calculate the values of m and n that satisfy the simultaneous linear equations:

$$4m - 3n = 7 \text{ and } m + 6n = 4$$

[ 4 marks]

6. Calculate the values of p and q that satisfy the simultaneous linear equations:

$$2p - 3q = 13$$

$$4p + q = 5$$

[ 4 marks]

7. Calculate the values of p and q that satisfy the simultaneous linear equations:

$$\frac{1}{2}p - 2q = 13$$

$$3p + 4q = -2$$

[ 4 marks]

8. Calculate the values of k and w that satisfy the simultaneous linear equations:

$$2k - 3w = 10 \text{ and } 4k + w = -1$$

[ 4 marks]

9. Calculate the values of m and n that satisfy the simultaneous linear equations:

$$2m - 5n = -12 \text{ and } 3m + n = -1$$

[ 4 marks]

10. Calculate the values of  $x$  and  $y$  that satisfy the simultaneous linear equations:

$$x - 3y = 5$$

$$3x - y = 3$$

[ 4 marks]

11. Calculate the values of  $s$  and  $t$  that satisfy the simultaneous linear equations:

$$8s + 3t = 12$$

$$6s - 9t = 24$$

[ 4 marks]

12. Calculate the values of  $m$  and  $n$  that satisfy the simultaneous linear equations:

$$m - 3n = 6 \text{ and } 2m - n = 7$$

[ 4 marks]

13. Calculate the values of k and h that satisfy the simultaneous linear equations:

$$4k - 3h = 10$$

$$2k - 5h = 12$$

[ 4 marks]

14. Calculate the values of m and n that satisfy the simultaneous linear equations:

$$2m + 3n = 9$$

$$\frac{1}{3}m - n = 2$$

[ 4 marks]

15. Calculate the values of m and n that satisfy the simultaneous linear equations:

$$2m - n = 2$$

$$4m - 3n = 5$$

[ 4 marks]

**MODULE 1- ANSWERS**  
**TOPIC: SIMULTENOUS LINEAR EQUATIONS**

1. Calculate the values of m and n that satisfy the simultaneous linear equations:  
 $4m + n = 2$  and  $2m - 3n = 8$  [ 4 marks]

$$\begin{array}{l} 12m + 3n = 6 \qquad \qquad \qquad 1 \\ 2m - 3n = 8 \\ 14m = 14 \qquad \qquad \qquad 1 \\ m = 1 \qquad \qquad \qquad 1 \\ \\ n = -2 \qquad \qquad \qquad 1 \end{array}$$

2. Calculate the values of m and n that satisfy the simultaneous linear equations:

$$\begin{array}{l} \frac{1}{2}m - 3n = 10 \\ 5m + 6n = -8 \end{array} \qquad \qquad \qquad [ 4 marks]$$

$$\begin{array}{l} m - 6n = 20 \qquad \qquad \qquad 1 \\ 5m + 6n = -8 \\ 6m = 12 \qquad \qquad \qquad 1 \\ m = 2 \qquad \qquad \qquad 1 \\ \\ n = -2 \qquad \qquad \qquad 1 \end{array}$$

3. Calculate the values of m and n that satisfy the simultaneous linear equations:

$$\begin{array}{l} 2m - n = 7 \\ m - 2n = 5 \end{array} \qquad \qquad \qquad [ 4 marks]$$

$$\begin{array}{l} 2m - n = 7 \\ 2m - 4n = 10 \qquad \qquad \qquad 1 \\ 3n = -3 \qquad \qquad \qquad 1 \\ n = -1 \qquad \qquad \qquad 1 \\ \\ m = 3 \qquad \qquad \qquad 1 \end{array}$$

4. Calculate the values of p and q that satisfy the simultaneous linear equations:

$$\begin{array}{l} p + 2q = 6 \\ \frac{3}{2}p - q = -7 \end{array} \qquad \qquad \qquad [ 4 marks]$$

$$\begin{array}{l} p + 2q = 6 \\ 3p - 2q = -14 \qquad \qquad \qquad 1 \\ 4p = -8 \qquad \qquad \qquad 1 \\ p = -2 \qquad \qquad \qquad 1 \\ q = 4 \qquad \qquad \qquad 1 \end{array}$$

5. Calculate the values of  $m$  and  $n$  that satisfy the simultaneous linear equations:  
 $4m - 3n = 7$  and  $m + 6n = 4$  [ 4 marks]

$$\begin{array}{l} 4m - 3n = 7 \\ 4m + 24n = 16 \qquad 1 \\ -27n = -9 \qquad 1 \\ n = \frac{1}{3} \qquad 1 \\ m = 2 \qquad 1 \end{array}$$

6. Calculate the values of  $p$  and  $q$  that satisfy the simultaneous linear equations:  
 $2p - 3q = 13$   
 $4p + q = 5$  [ 4 marks]

$$\begin{array}{l} 4p - 6q = 26 \qquad 1 \\ 4p + q = 5 \\ -7q = 21 \qquad 1 \\ q = -3 \qquad 1 \\ p = 2 \qquad 1 \end{array}$$

7. Calculate the values of  $p$  and  $q$  that satisfy the simultaneous linear equations:

$$\begin{array}{l} \frac{1}{2}p - 2q = 13 \\ 3p + 4q = -2 \qquad [ 4 marks] \\ p - 4q = 26 \qquad 1 \\ 3p + 4q = -2 \\ 4p = 24 \qquad 1 \\ p = 6 \qquad 1 \\ q = -5 \qquad 1 \end{array}$$

8. Calculate the values of  $k$  and  $w$  that satisfy the simultaneous linear equations:  
 $2k - 3w = 10$  and  $4k + w = -1$  [ 4 marks]

$$\begin{array}{l} 4k - 6w = 20 \qquad 1 \\ 4k + w = -1 \\ -7w = 21 \qquad 1 \\ w = -3 \qquad 1 \\ k = \frac{1}{2} \qquad 1 \end{array}$$

9. Calculate the values of  $m$  and  $n$  that satisfy the simultaneous linear equations:  
 $2m - 5n = -12$  and  $3m + n = -1$  [ 4 marks]

$$\begin{array}{rcl} 2m - 5n & = & -12 \\ 15m + 5n & = & -5 & 1 \\ 17m & = & 17 & 1 \\ m & = & -1 & 1 \\ & & & \\ n & = & 2 & 1 \end{array}$$

10. Calculate the values of  $x$  and  $y$  that satisfy the simultaneous linear equations:

$$\begin{array}{rcl} x - 3y & = & 5 \\ 3x - y & = & 3 & [ 4 \text{ marks}] \end{array}$$

$$\begin{array}{rcl} 3x - 9y & = & 15 & 1 \\ 3x - y & = & 3 & \\ -8y & = & 12 & 1 \\ y & = & -\frac{3}{2} & 1 \\ & & & \\ x & = & \frac{1}{2} & 1 \end{array}$$

11. Calculate the values of  $s$  and  $t$  that satisfy the simultaneous linear equations:

$$\begin{array}{rcl} 8s + 3t & = & 12 \\ 6s - 9t & = & 24 & [ 4 \text{ marks}] \end{array}$$

$$\begin{array}{rcl} 24s + 9t & = & 36 & 1 \\ 6s - 9t & = & 24 & \\ 30s & = & 60 & 1 \\ s & = & 2 & 1 \\ & & & \\ t & = & -\frac{4}{3} & 1 \end{array}$$

12. Calculate the values of  $m$  and  $n$  that satisfy the simultaneous linear equations:

$$m - 3n = 6 \text{ and } 2m - n = 7 \quad [ 4 \text{ marks}]$$

$$\begin{array}{rcl} 2m - 6n & = & 12 & 1 \\ 2m - n & = & 7 & \\ -5n & = & 5 & 1 \\ n & = & -1 & 1 \\ & & & \\ m & = & 3 & 1 \end{array}$$

13. Calculate the values of k and h that satisfy the simultaneous linear equations:

$$4k - 3h = 10$$

$$2k - 5h = 12$$

[ 4 marks]

$$4k - 3h = 10$$

$$4k - 10h = 24$$

1

$$-7h = -14$$

1

$$h = 2$$

1

$$k = 4$$

1

14. Calculate the values of m and n that satisfy the simultaneous linear equations:

$$2m + 3n = 9$$

$$\frac{1}{3}m - n = 2$$

[ 4 marks]

$$2m + 3n = 9$$

$$m - 3n = 6$$

1

$$3m = 15$$

1

$$m = 5$$

1

$$n = \frac{1}{3}$$

1

15. Calculate the values of m and n that satisfy the simultaneous linear equations:

$$2m - n = 2$$

$$4m - 3n = 5$$

[ 4 marks]

$$6m - 3n = 6$$

1

$$4m - 3n = 5$$

$$2m = 1$$

1

$$m = \frac{1}{2}$$

1

$$n = 1$$

1