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PURE MATH

ALGEBRA AND FUNCTION

Level & Board	EDEXCEL (A-LEVEL)
TOPIC:	SIMULTANEOUS
PAPER TYPE:	SOLUTION 6
TOTAL QUESTIONS	8
TOTAL MARKS	38

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<u>Simultaneous 6</u>

Q.1

As $3x + y = 1 \rightarrow (i)$ $x - y = 17 \rightarrow (ii)$ Adding (i) and (ii), we get 4x = 18 $x = \frac{9}{2}$ Put in (ii) $\frac{9}{2} - y = 17$ $y = \frac{9}{2} - 17$

$\frac{1}{2} - y = 1/2$	
$y = \frac{9}{2} - 17$	
$y = \frac{9-34}{2}$	
$y = \frac{-25}{2}$	
(9 -25)	
$S.S = \{\frac{1}{2}, \frac{1}{2}\}$	

Hence,

Q.2

As

 $3m + p = 1 \rightarrow (i)$ $m + p = 2 \rightarrow (ii)$ Using equation (ii), we get m + p = 2 $p = 2m \rightarrow (iii)$ Equation (iii) put in (i) 3m + 2m = 1 2m = -1 $m = \frac{-1}{2}$ put in (iii) $\Rightarrow p = 2 - \left(\frac{-1}{2}\right)$ $\Rightarrow P = 2 + \frac{1}{2}$ $\Rightarrow P = \frac{5}{2}$ Thus, $s.s = \left\{\frac{-1}{2}, \frac{5}{2}\right\}$

I am Sorry !!!!!

Q.3

As

$$3m + 17p = 25 \rightarrow (i)$$

$$m + 2p = 3 \rightarrow (ii)$$
Multiply (3) ×(ii), we get
$$3m + 6p = 9 \rightarrow (iii)$$
Subtract equation (i) and (iii), we get
$$11p = 16$$

$$p = \frac{16}{11}$$
put in (ii)
$$m + 2\left(\frac{16}{11}\right) = 3$$

$$m + \frac{32}{11} = 3$$

$$m = 3 - \frac{32}{11}$$

$$m = \frac{33 - 32}{11}$$

$$m = \frac{1}{11}$$

Hence,

 $s.s = \left\{\frac{16}{11}, \frac{1}{11}\right\}$

Q.4

As

	$x + 5y = 1 \to (i)$
	$x + 4y = 7 \rightarrow (ii)$
Subtract (i) and	d (ii) we get
	y = -6
Put in (ii)	
	x + 4y = 7
	x + 4(-6) = 7
	x - 24 = 7
	x = 7 + 24
	x = 31
Hence,	
	$s.s = \{31, -6\}$

I am Sorry !!!!!

Let

$$3p + 2m = 1 \rightarrow (i)$$

$$p + m = 21 \rightarrow (ii)$$
Multiply (3) ×(ii)

$$3p + 3m = 63 \rightarrow (iii)$$
Sub (i) and (iii), we get

$$\Rightarrow -m = -62$$

$$\Rightarrow m = 62 \quad \text{put in (ii)}$$

$$p + m = 21$$

$$p + 62 = 21$$

$$p + 62 = 21$$

$$p = 21 - 62$$

$$p = -41$$
Hence,

$$s.s = \{-41, 62\}$$

Q.6

Let $l + m = 1 \rightarrow (i)$ $l + 2m = 7 \rightarrow (ii)$

Sub (i) and (ii) we get

$$\Rightarrow -m = -6$$

$$\Rightarrow m = 6 \quad \text{put in (i)}$$

$$l + m = 1$$

$$l + 6 = 1$$

$$l = 1 - 6$$

$$l = -5$$

Thus,

$$s.s = \{-5,6\}$$

I am Sorry !!!!!

Let $x + 2y = 13 \rightarrow (i)$ $2x + y = 1 \rightarrow (ii)$ Multiply (2) × (ii), we get $4x + 2y = 2 \rightarrow (iii)$ Sub (i) and (iii), we get $\Rightarrow -3x = 11$ $\Rightarrow x = \frac{-11}{3} \text{ put in (i)}$ $\frac{-11}{3} + 2y = 13$ $2y = 13 + \frac{11}{3}$ $2y = \frac{39 + 11}{3} = \frac{50}{3}$ $y = \frac{25}{3}$ So, $s. s = \left\{\frac{-11}{3}, \frac{25}{3}\right\}$

Q.8

Let
$$l + m = 20 \rightarrow (i)$$
$$2l + m = 10 \rightarrow (ii)$$

Sub (i) and (ii) we get
$$-l = 10$$
$$l = 10$$

Put in (i)
$$-10 + m = 20$$
$$m = 20 + 10$$
$$m = 30$$

So,
$$s.s = \{-10,30\}$$

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