

**LC 2014 (SET C): PAPER 1****QUESTION 3 (25 MARKS)****Question 3 (a) (i)**

$$2(4 - 3x) + 12 = 7x - 5(2x - 7) \leftarrow \text{Multiply out brackets}$$

$$8 - 6x + 12 = 7x - 10x + 35 \leftarrow \text{Bring } x \text{ terms to the left and numbers to the right.}$$

$$-6x - 7x + 10x = 35 - 8 - 12 \leftarrow \text{Add } x \text{ terms and add numbers.}$$

$$-3x = 15 \leftarrow \text{Divide both sides by 3.}$$

$$\therefore x = \frac{15}{-3} = -5$$

**Question 3 (a) (ii)**

Put  $x = 5$  into the left hand side (**LHS**) of the equation and put  $x = 5$  into the right-hand side (**RHS**) of the equation. The answer is verified if **LHS = RHS**.

<b>LHS</b>		<b>RHS</b>
$x = -5$		$x = -5$
$2(4 - 3x) + 12$		$7x - 5(2x - 7)$
$= 2(4 - 3(-5)) + 12$		$= 7(-5) - 5(2(-5) - 7)$
$= 2(4 + 15) + 12$		$= -35 - 5(-10 - 7)$
$= 2(19) + 12$		$= -35 - 5(-17)$
$= 38 + 12$		$= -35 + 85$
$= 50$		$= 50$

**MARKING SCHEME NOTES****Question 3 (a) (i) [Scale 10C (0, 3, 7, 10)]**

- 3:** • Some correct attempt at solving  
**7:** • Not more than 2 errors in solving

**Question 3 (a) (ii) [Scale 5B (0, 2, 5)]**

- 2:** • Some correct substitution of answers from (i)  
 • No conclusion or incorrect conclusion if not equal

**Question 3 (b)**

$$x + y = 7 \dots\dots\dots(1)$$

$$x^2 + y^2 = 25 \dots\dots(2)$$

$x + y = 7 \Rightarrow x = (7 - y)$  [Substitute equation (1) into equation (2).]

$$x^2 + y^2 = 25 \dots\dots(2)$$

$$(7 - y)^2 + y^2 = 25 \leftarrow \text{Expand the bracket.}$$

$$49 - 14y + y^2 + y^2 = 25$$

$$2y^2 - 14y + 24 = 0 \leftarrow \text{Divide each term by 2.}$$

$$y^2 - 7y + 12 = 0 \leftarrow \text{Factorise the quadratic.}$$

$$(y - 3)(y - 4) = 0$$

$$\therefore y = 3, 4$$

Find the corresponding  $x$  values.

$$y = 3 : x = (7 - y) = 7 - 3 = 4$$

$$y = 4 : x = (7 - y) = 7 - 4 = 3$$

(3, 4) and (4, 3) are the solutions.

**MARKING SCHEME NOTES**

**Question 3 (b) [Scale 10D (0, 3, 5, 8, 10)]**

- 3:**
- Some correct attempt at isolating  $x$  or  $y$  in linear equation
  - Trial and Error into both equations (once only)

- 5:**
- Correctly substitutes into quadratic
  - Trial and Error into both equations (more than once)

- 8:**
- Solves correctly for 1 variable only and stops or one  $(x, y)$  only
  - Trial and Error into both equations leading to correct  $(x, y)$