

## LC 2016 (SET A): PAPER 1

### QUESTION 9 (45 MARKS)

#### Question 9 (a) (i)

$$A(h) = 30 + 9 \cdot 5h$$

$$t = 0: A(0) = 30 + 9 \cdot 5(0) = \text{€}30 \cdot 00$$

$$t = 1: A(1) = 30 + 9 \cdot 5(1) = \text{€}39 \cdot 50$$

$$t = 2: A(2) = 30 + 9 \cdot 5(2) = \text{€}49 \cdot 00$$

$$t = 3: A(3) = 30 + 9 \cdot 5(3) = \text{€}58 \cdot 50$$

$$t = 4: A(4) = 30 + 9 \cdot 5(4) = \text{€}68 \cdot 00$$

$$t = 5: A(5) = 30 + 9 \cdot 5(5) = \text{€}77 \cdot 50$$

$$B(h) = 10(1 \cdot 74)^h$$

$$t = 0: B(0) = 10(1 \cdot 74)^0 = \text{€}10 \cdot 00$$

$$t = 1: B(1) = 10(1 \cdot 74)^1 = \text{€}17 \cdot 40$$

$$t = 2: B(2) = 10(1 \cdot 74)^2 = \text{€}30 \cdot 28$$

$$t = 3: B(3) = 10(1 \cdot 74)^3 = \text{€}52 \cdot 68$$

$$t = 4: B(4) = 10(1 \cdot 74)^4 = \text{€}91 \cdot 66$$

$$t = 5: B(5) = 10(1 \cdot 74)^5 = \text{€}159 \cdot 49$$

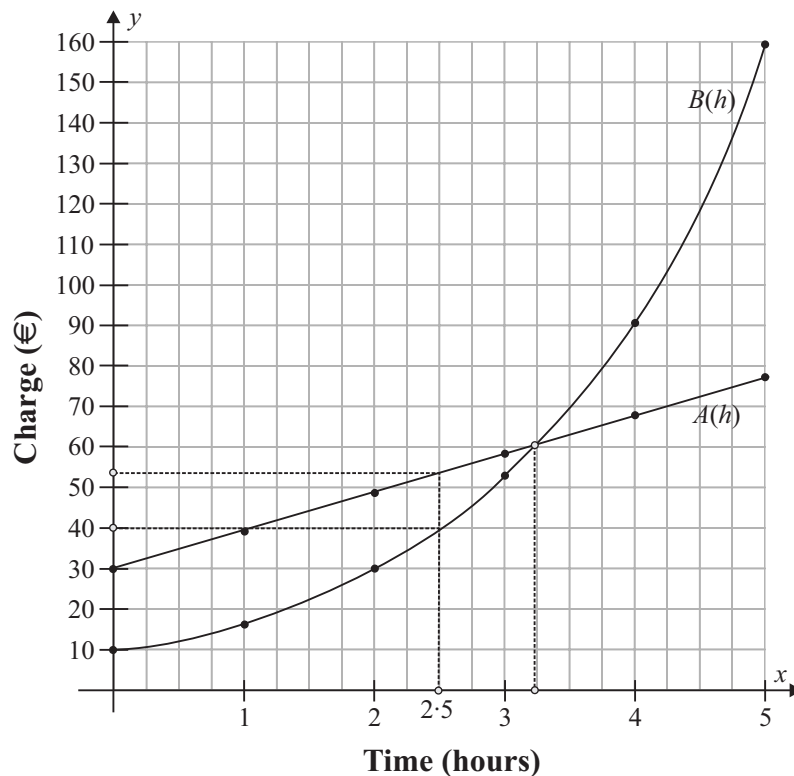
Time (hours)	0	1	2	3	4	5
$A(h)$ (€)	30·00	39·50	49·00	58·50	68·00	77·50
$B(h)$ (€)	10·00	17·40	30·28	52·68	91·66	159·49

#### MARKING SCHEME NOTES

#### Question 9 (a) (i) [Scale 10D (0, 2, 4, 6, 10)]

- 2: • relevant calculations  
 • 1, 2, 3 or 4 correct entries into table
- 4: • 5 or 6 correct entries
- 6: • 7, 8 or 9 correct entries

#### Question 9 (a) (ii)



**MARKING SCHEME NOTES**

**Question 9 (a) (ii) [Scale 15D (0, 4, 7, 11, 15)]**

**4:** • 1, 2, 3 or 4 correct plots

**7:** • 5 to 11 correct plots

**11:** • All plots correct but no joining or incorrect joining  
• 9, 10 or 11 points plotted correct and joined correctly

(b) *B* charges least for a job taking 2.5 hours as *B* charges about €40 whereas *A* charges over €50.

(c)  $h \approx 3.2$  hours

(d)  $A(h) = 30 + 9 \cdot 5h$

$$A(6) = 30 + 9 \cdot 5(6) = \text{€}87$$

$$B(h) = 10(1.74)^h$$

$$B(6) = 10(1.74)^6 = \text{€}277.52$$

$$B(6) - A(6) = \text{€}277.52 - \text{€}87 = \text{€}190.52$$

**MARKING SCHEME NOTES**

**Question 9 (b) [Scale 5B (0, 2, 5)]**

**2:** • *A* or *B* clearly identified on graph  
• *B* given as answer but no reason

**Question 9 (c) [Scale 5B (0, 2, 5)]**

**2:** • Point clearly indicated on graph

**Question 9 (d) [Scale 10D (0, 2, 4, 6, 10)]**

**2:** •  $A(6)$  or  $B(6)$  substituted correctly

**4:** •  $A(6)$  or  $B(6)$  evaluated correctly

**6:** •  $A(6)$  and  $B(6)$  evaluated correctly