

Sols to Ex 1.8 (Small book:T&T 4) Ex 4.8 (Big book: T&T 4)

Exercise 4.8

1. (i) (a) 95°F (b) 58°F (c) 10°C (d) 38°C

(ii) (50, 10) (95, 35)

$$\text{Slope} = \frac{35 - 10}{95 - 50} = \frac{25}{45} = \frac{5}{9}$$

$$\text{Equation: } y - 10 = \frac{5}{9}(x - 50)$$

$$\Rightarrow 9y - 90 = 5x - 250$$

$$\Rightarrow 5x - 9y - 160 = 0$$

(iii) $y = 95 \Rightarrow 5x - 9(95) - 160 = 0$

$$\Rightarrow 5x - 855 - 160 = 0$$

$$\Rightarrow 5x = 1015$$

$$\Rightarrow x = 203^\circ\text{F}$$

2. $C = 20 + 4M$

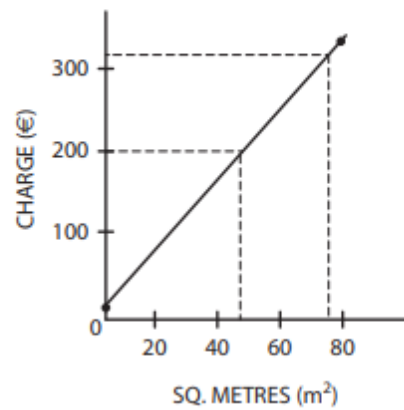
$$M = 0 \Rightarrow C = 20 + 0 = 20 \quad (0, 20)$$

$$M = 80 \Rightarrow C = 20 + 4(80) = 340 \quad (80, 340)$$

(i) $M = 75 \Rightarrow C = \text{€}320$

(ii) $C = 200 \Rightarrow M = 45 \text{ m}^2$

(iii) $M = 105 \Rightarrow C = 20 + 4(105) = \text{€}440$



3. (i) $T = 1 \Rightarrow I = 5000\left(\frac{8}{100}\right)(1) = 400(1) = \text{€}400$
 $T = 2 \Rightarrow I = 5000\left(\frac{8}{100}\right)(2) = 400(2) = \text{€}800$
 $T = 3 \Rightarrow I = 5000\left(\frac{8}{100}\right)(3) = 400(3) = \text{€}1200$

(ii) $I = 400T$

(iii) $3500 = 400T \Rightarrow T = 8\frac{3}{4}$ years

(iv) $A = 400T + 5000$

4. (i) $(60, 100), (100, 50)$

(ii) Slope = $\frac{50 - 100}{100 - 60} = \frac{-50}{40} = \frac{-5}{4}$

Equation: $N - 100 = \frac{-5}{4}(P - 60)$
 $\Rightarrow 4N - 400 = -5P + 300$
 $\Rightarrow 5P + 4N = 700$

(iii) $N = 88 \Rightarrow 5P + 4(88) = 700$

$\Rightarrow 5P + 352 = 700$

$\Rightarrow 5P = 348$

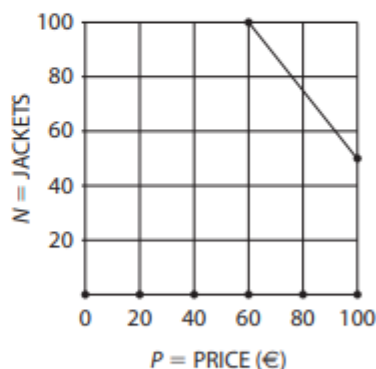
$\Rightarrow P = \text{€}69.60$

(iv) $P = 72 \Rightarrow 5(72) + 4N = 700$

$\Rightarrow 360 + 4N = 700$

$\Rightarrow 4N = 340$

$\Rightarrow N = 85$



5. (i) A: $P = 5 + 2D$ (0, 5)(10, 25)

B: $P = 2.2D$ (0, 0)(10, 22)

(ii) Line A: Slope = $\frac{25 - 5}{10 - 0} = \frac{20}{10} = 2$

Equation: $P - 5 = 2(D - 0)$

$\Rightarrow P - 5 = 2D$

$\Rightarrow P = 5 + 2D$

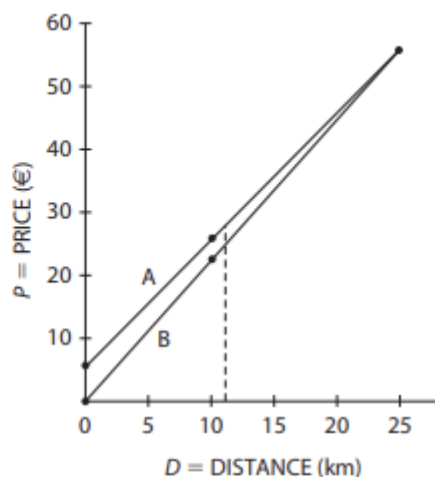
Line B: Slope = $\frac{22 - 0}{10 - 0} = 2.2$

Equation: $P - 0 = 2.2(D - 0)$

$\Rightarrow P = 2.2D$

(iii) $D = 25$ km

(iv) Firm B



6. (i) $D = 20 + 0.2p$ (0, 20)(10, 22)

$S = -12 + p$ (12, 0)(20, 8)

(ii) $p = \text{€}40$ and 28 articles

