Exercise 5H

Q5

a)

$$7100 = 6a + b \quad (1)$$
$$9550 = 13a + b \quad (2)$$

(2) - (1)

$$2450 = 7a$$
$$\frac{2450}{7} = a$$
$$a = £350$$

Sub for a in (1)

$$7100 = 6 \times 350 + b$$
$$7100 - 2100 = b$$
$$£5000 = b$$

$$C = 350d + 5000$$

b)

a = daily rate

b = flat fee

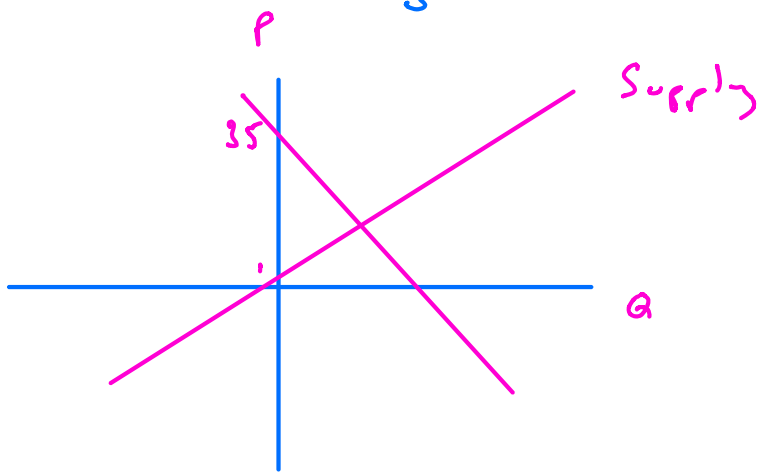
c)

$$13400 = 350d + 5000$$
$$\frac{13400 - 5000}{350} = d$$
$$d = 24$$

so 24 days

a) $P = -\frac{3}{4}Q + 35$ ① Demand

$P = \frac{2}{3}Q + 1$ ② Supply



② - ① $0 = \frac{17}{12}Q - 34$

$34 = \frac{17}{12}Q$

$34 \times \frac{12}{17} = Q$

$\underline{Q = 24}$

Sub in ② for Q

$P = \frac{2}{3} \times 24 + 1$

$\underline{P = 17}$

---

6)

a) $F = aC + b$

$68 = 20a + b$ ①

$48.2 = 9a + b$ ②

① - ② $19.8 = 11a$

$$\frac{19.8}{11} = a$$

$$a = 1.8$$

Sub for a in ①

$$68 = 20 \times 1.8 + b$$

$$68 - 36 = b$$

$$32 = b$$

$$F = 1.8C + 32$$

b)

b = Fahrenheit temp at 0°C

a = Rise in Fahrenheit per degree C

c)

$$101.3 = 1.8C + 32$$

$$101.3 - 32 = 1.8C$$

$$\frac{69.3}{1.8} = C$$

$$C = 38.5$$

Highest Temp = 38.5 °C

d) If $F = C$

$$F = 1.8F + 32$$

$$-32 = 0.8F$$

$$\frac{-32}{0.8} = F$$

$$F = C = -40^\circ$$

---

8) a) Points close to a straight line

$A(24, 165)$
$B(27, 177)$

b)

$$\frac{y - y_1}{y_2 - y_1} = \frac{x - x_1}{x_2 - x_1} \qquad \frac{y - 165}{177 - 165} = \frac{x - 24}{27 - 24}$$

$$\frac{y - 165}{12} = \frac{x - 24}{3}$$

$$y - 165 = 4(x - 24)$$

$$y - 165 = 4x - 96$$

$$y = 4x + 69$$

$$\underline{h = 4f + 69}$$

c)

$$h = 4 \times 26.5 + 69$$

$$h = 175 \text{ cm}$$

Now work through even numbers of Mixed Exercise 5