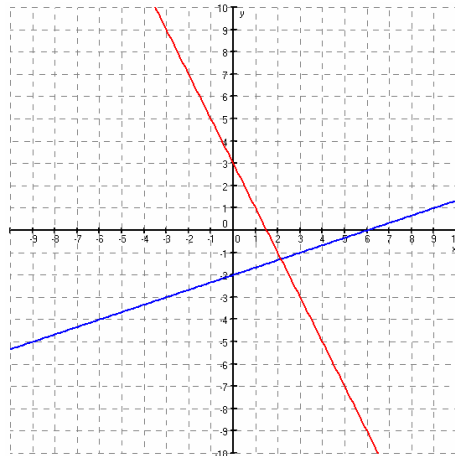


## 2.6 Diagnostische toets

### Opgave 1:

$$rc_l = -2 \text{ door } (0,3)$$

$$rc_m = \frac{1}{3} \text{ door } (0,-2)$$



### Opgave 2:

a.  $rc_k = rc_l = -\frac{1}{2}$

$$y = -\frac{1}{2}x + b \text{ door } (9,3)$$

$$3 = -4\frac{1}{2} + b$$

$$b = 7\frac{1}{2}$$

$$k: y = -\frac{1}{2}x + 7\frac{1}{2}$$

b.  $y = b$  door  $(-1,6)$

$$6 = b$$

$$m: y = 6$$

c. snijpunt x-as:  $y = 0$

$$8x + 5 = 0$$

$$8x = -5$$

$$x = -0,625 \text{ dus } A(-0,625;0)$$

snijpunt y-as:  $x = 0$

$$y = 5 \text{ dus } B(0,5)$$

### Opgave 3:

a.  $6x - 13 = 4x$

$$2x = 13$$

$$x = 6,5$$

b.  $1,5x + 2,1 = 6,3 - 1,3x$

$$2,8x = 4,2$$

$$x = 1,5$$

c.  $5 - 3(x - 1) = 8 - (2x - 1)$

$$5 - 3x + 3 = 8 - 2x + 1$$

$$-x = 1$$

$$x = -1$$

d.  $0,25(x - 3) = 2x + 1$

$$0,25x - 0,75 = 2x + 1$$

$$-1,75x = 1,75$$

$$x = -1$$

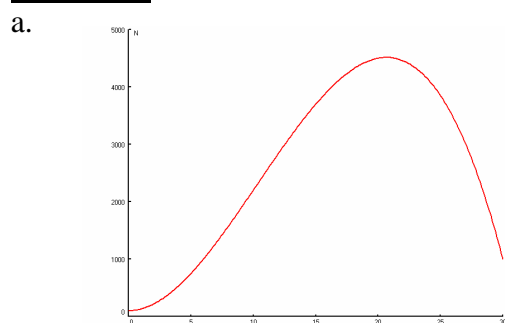
**Opgave 4:**

- a.  $rc = \frac{\Delta y}{\Delta x} = \frac{-2-2}{3--5} = -0,5$   
 $y = -0,5x + b$  door  $(-5,2)$   
 $2 = 2,5 + b$   
 $b = -0,5$   
 $k: y = -0,5x - 0,5$
- b.  $rc = \frac{\Delta y}{\Delta x} = \frac{135-60}{65-40} = 3$   
 $y = 3x + b$  door  $(40,60)$   
 $b = -60$   
 $l: y = 3x - 60$

**Opgave 5:**

- a. als  $p = 7,5$  dan  $t = 800$   
als  $p = 9,75$  dan  $t = 665$   
 $rc = \frac{\Delta t}{\Delta p} = \frac{665-800}{9,75-7,5} = -60$   
 $t = -60p + b$  door  $(7,5;800)$   
 $800 = -450 + b$   
 $b = 1250$   
 $t = -60p + 1250$
- b.  $t = -60 \cdot 11,25 + 1250 = 575$
- c.  $-60p + 1250 > 1000$   
 $-60p > -250$   
 $p < 4,167$  dus als de prijs € 4,16 of lager is.

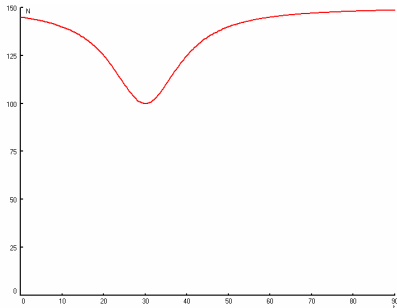
**Opgave 6:**



- b. 10 juni 12.00 uur is  $t = 9,5$   
 $N(9,5) = 2040$
- c. de optie maximum geeft  $x = 20,67$  dus op 21 juni,  $N_{\max} = 4513$
- d.  $y_2 = 3000$  de optie intersect geeft  $x = 12,5 \vee x = 27,0$   
dus vanaf 13 juni tot en met 28 juni

**Opgave 7:**

a.  $y_1 = 150 - 50 \div ((0.1x - 3)^2 + 1)$



b. de optie minimum geeft  $x = 30$  dus na 30 dagen

c.  $y_2 = 110$  de optie intersect geeft  $x = 25 \vee x = 35$   
dus gedurende 10 dagen

d.  $N(0) = 145$

$y_2 = 145$  de optie intersect geeft  $x = 60$  dus na 60 dagen

**Opgave 8:**

a.  $3x^2 - x = 0$

$$x(3x - 1) = 0$$

$$x = 0 \vee 3x = 1$$

$$x = 0 \vee x = \frac{1}{3}$$

b.  $3x^2 - 9x = 12$

$$3x^2 - 9x - 12 = 0$$

$$x^2 - 3x - 4 = 0$$

$$(x - 4)(x + 1) = 0$$

$$x = 4 \vee x = -1$$

c.  $3x^2 - x = 2$

$$3x^2 - x - 2 = 0$$

$$x = \frac{1 \pm \sqrt{1 + 24}}{6} = \frac{1 \pm \sqrt{25}}{6} = \frac{1 \pm 5}{6}$$

$$x = \frac{1 + 5}{6} = 1 \vee x = \frac{1 - 5}{6} = -\frac{2}{3}$$

d.  $x^2 + 4 = 16$

$$x^2 = 12$$

$$x = \sqrt{12} = 3,46 \vee x = -\sqrt{12} = -3,46$$

e.  $x^2 + 2(2x - 6) = -3$

$$x^2 + 4x - 12 = -3$$

$$x^2 + 4x - 9 = 0$$

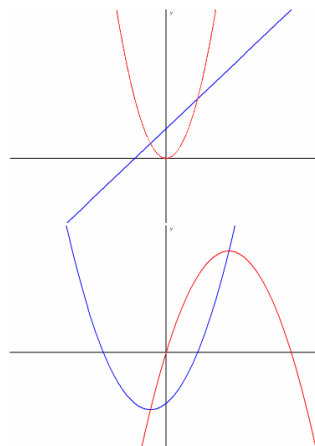
$$x = \frac{-4 \pm \sqrt{16 + 36}}{2} = \frac{-4 \pm \sqrt{52}}{2}$$

$$x = \frac{-4 + \sqrt{52}}{2} = 1,61 \vee x = \frac{-4 - \sqrt{52}}{2} = -5,61$$

- f.  $(3x - 5)(2x - 6) = 0$   
 $3x = 5 \quad \vee \quad 2x = 6$   
 $x = \frac{5}{3} \quad \vee \quad x = 3$
- g.  $8x^2 + 3 = 10x$   
 $8x^2 - 10x + 3 = 0$   
 $x = \frac{10 \pm \sqrt{100 - 94}}{16} = \frac{10 \pm \sqrt{4}}{16} = \frac{10 \pm 2}{16}$   
 $x = \frac{10 + 2}{16} = 0,75 \quad \vee \quad x = \frac{10 - 2}{16} = 0,5$
- h.  $(3x + 2)(x - 1) = (x + 5)x$   
 $3x^2 - 3x + 2x - 2 = x^2 + 5x$   
 $2x^2 - 6x - 2 = 0$   
 $x^2 - 3x - 1 = 0$   
 $x = \frac{3 \pm \sqrt{9 + 4}}{2} = \frac{3 \pm \sqrt{13}}{2}$   
 $x = \frac{3 + \sqrt{13}}{2} = 3,30 \quad \vee \quad x = \frac{3 - \sqrt{13}}{2} = -0,30$
- i.  $(x + 2)^2 = 3x + 7$   
 $x^2 + 4x + 4 = 3x + 7$   
 $x^2 + x - 3 = 0$   
 $x = \frac{-1 \pm \sqrt{1 + 12}}{2} = \frac{-1 \pm \sqrt{13}}{2}$   
 $x = \frac{-1 + \sqrt{13}}{2} = 1,30 \quad \vee \quad x = \frac{-1 - \sqrt{13}}{2} = -2,30$
- j.  $9 - (x - 1)^2 = (x - 4)^2$   
 $9 - (x^2 - 2x + 1) = x^2 - 8x + 16$   
 $9 - x^2 + 2x - 1 = x^2 - 8x + 16$   
 $-2x^2 + 10x - 8 = 0$   
 $x^2 - 5x + 4 = 0$   
 $(x - 1)(x - 4) = 0$   
 $x = 1 \quad \vee \quad x = 4$

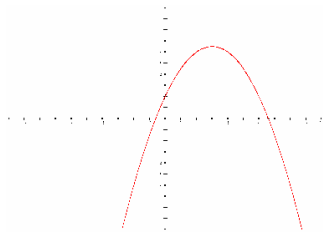
**Opgave 9:**

- a.  $y_1 = x^2$   
 $y_2 = x + 2$   
intersect geeft  $x = -1 \quad \vee \quad x = 2$   
dus  $x \leq -1 \quad \vee \quad x \geq 2$
- b.  $y_1 = x(8 - x)$   
 $y_2 = (x - 2)(x + 4)$   
intersect geeft  $x = -1 \quad \vee \quad x = 4$   
dus  $-1 < x < 4$



**Opgave 10:**

a.



b. de optie maximum geeft  $x = 3 \wedge y = 6,5$   
dus  $\max f(3) = 6,5$

c.  $A(0,2)$  $y_2 = 2$  intersect geeft  $x = 6$ dus  $AB = 6 - 0 = 6$ d.  $CD = 2 \cdot 6 = 12$  $f(x) = f(x+12)$  $y_1 = -0,5x^2 + 3x + 2$  en  $y_2 = -0,5(x+12)^2 + 3(x+12) + 2$ de optie intersect geeft  $x = -3 \wedge y = -11,5$ dus  $c = -11,5$ **Opgave 11:**a. als  $p = 600$  dan  $q = 250$ als  $p = 640$  dan  $q = 240$ 

$$rc = \frac{\Delta p}{\Delta q} = \frac{640 - 600}{240 - 250} = -4$$

 $p = -4q + b$  door  $(250,600)$ 

$$600 = -1000 + b$$

$$b = 1600$$

$$p = -4q + 1600$$

b.  $R = p \cdot q = (-4q + 1600) \cdot q = -4q^2 + 1600q$ c.  $y_1 = -4x^2 + 1600x$ de optie maximum geeft  $x = 200$  dus  $q = 200$ d.  $K = 320q + 50000$ e.  $W = R - K = -4q^2 + 1600q - (320q + 50000)$ 

$$= -4q^2 + 1600q - 320q - 50000$$

$$= -4q^2 + 1280q - 50000$$

f.  $y_2 = -4x^2 + 1280x - 50000$ de optie maximum geeft  $x = 160 \wedge y = 52400$ dus  $W_{\max} = 52400$  euro en  $q = 160$  dus  $p = -4 \cdot 160 + 1600 = 960$  euro