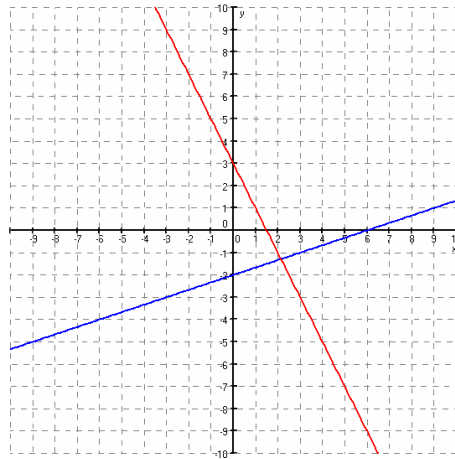


2.6 Diagnostische toets

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

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

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

$$x = -1$$

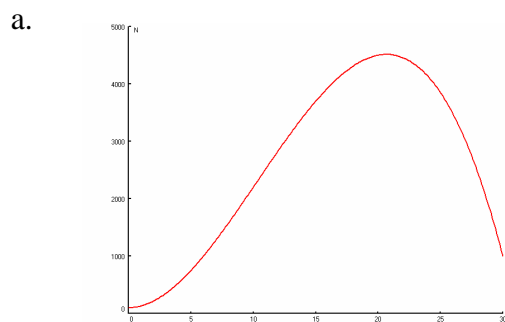
Opgave 4:

- 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.

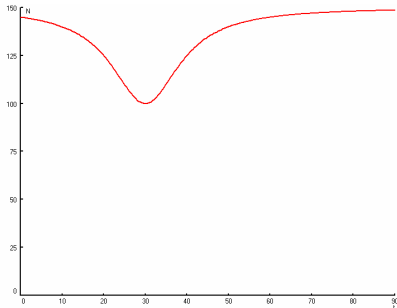
Opgave 6:



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

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

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

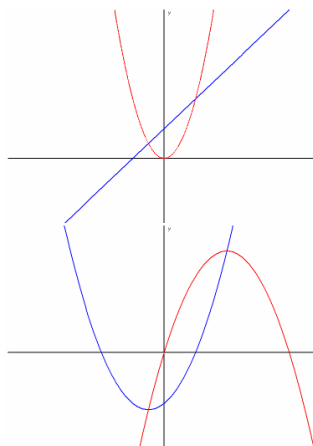
$$x = \frac{-4 \pm \sqrt{16 + 36}}{2} = \frac{-4 \pm \sqrt{52}}{2}$$

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

- 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. $9 - (x - 1)^2 = (x - 4)^2$
 $9 - (x^2 - 2x + 1) = x^2 - 8x + 16$
 $9 - x^2 + 2x - 1 = x^2 - 8x + 16$
 $-2x^2 + 10x - 8 = 0$
 $x^2 - 5x + 4 = 0$
 $(x - 1)(x - 4) = 0$
 $x = 1 \quad \vee \quad x = 4$

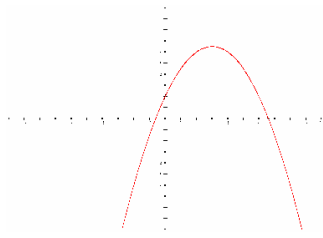
Opgave 9:

- 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