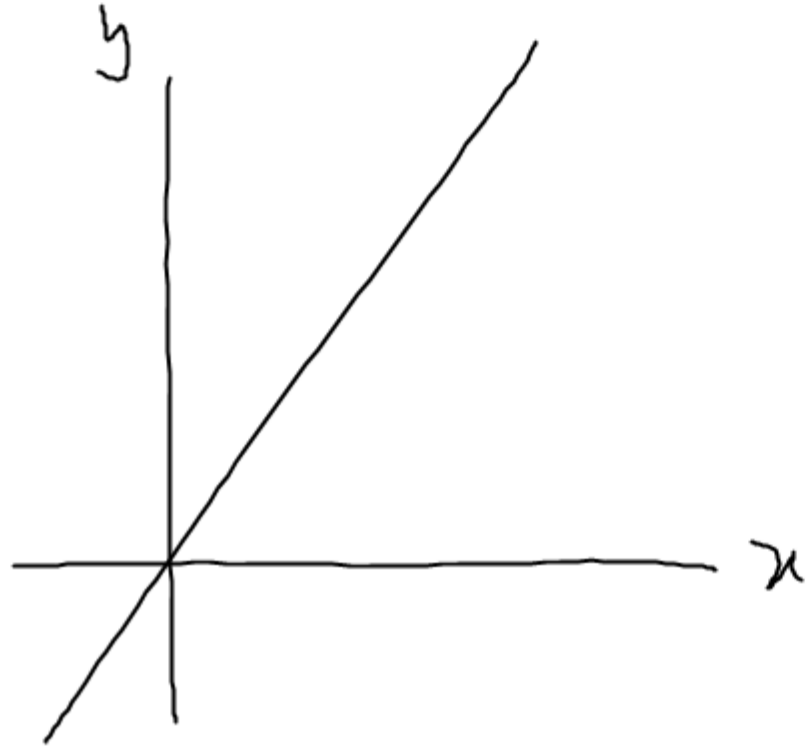


Rechtevenredig

grafiek is een rechte lijn door de oorsprong

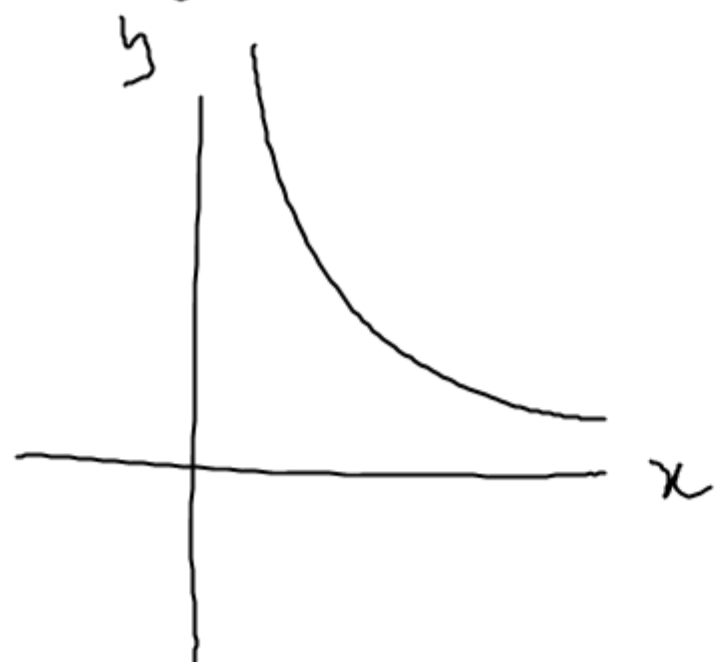


x	y
1	2
2	4
3	6
4	8
5	10

$$\frac{y}{x} = 2$$

$$y = 2 \cdot x$$

Omgekeerd evenredig



x	y
1	12
2	6
3	4
4	3
6	2

$$y \cdot x = 12$$

$$y = \frac{12}{x}$$

V5

$$1 \text{ nanometer} = 1 \cdot 10^{-9} \text{ m}$$

hoe vaak past $4 \cdot 10^{-9} \text{ m}$ in 1 mm ?

$$\frac{1 \text{ mm}}{4 \cdot 10^{-9} \text{ m}} = \frac{1 \text{ mm}}{4 \cdot 10^{-6} \text{ mm}} = 250000$$

$$\text{want } 4 \cdot 10^{-9} \cdot 1 \text{ m}$$

$$4 \cdot 10^{-9} \cdot 1000 \text{ mm}$$

$$4 \cdot 10^{-9} \cdot 10^3 \text{ mm}$$

$$4 \cdot 10^{-6} \text{ mm}$$

g d

$$q_k = 5 + \frac{4000}{T}$$

$$T_k = T \cdot q_k$$

totale kosten = aantal \cdot gem kosten

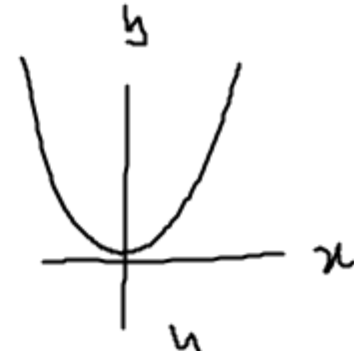
$$T_k = T \cdot \left(5 + \frac{4000}{T} \right)$$

$$T_k = T \cdot 5 + T \cdot \frac{4000}{T}$$

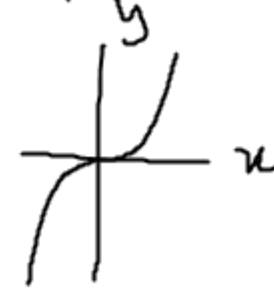
$$T_k = 5T + 4000$$

formules met machten

$$f(x) = x^2 \quad x^4 \quad x^6$$



$$f(x) = x^3 \quad x^5 \quad x^7$$

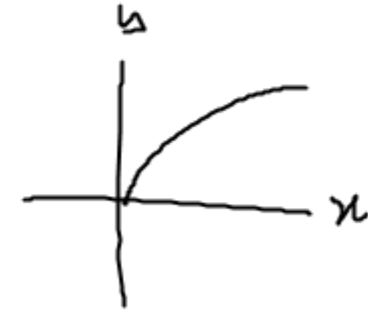


$$x^{\frac{1}{2}} = \sqrt{x}$$

$$f(x) = x^{\frac{1}{2}}$$

$$x^{\frac{1}{4}}$$

$$x^{\frac{1}{6}}$$



$$x^{\frac{1}{3}} = \sqrt[3]{x}$$

$$f(x) = x^{\frac{1}{3}}$$

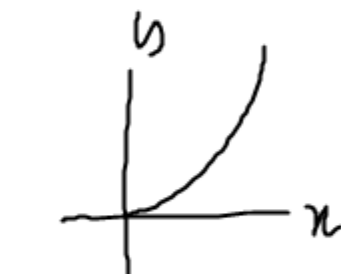
$$x^{\frac{1}{5}}$$

$$x^{\frac{1}{7}}$$



$$f(x) = x^{1,6}$$

als de macht een breuk is dan alleen $x > 0$

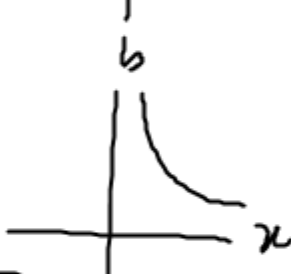


$$x^{-1} = \frac{1}{x}$$

$$f(x) = x^{-1}$$

$$x^{-3}$$

$$x^{-5}$$

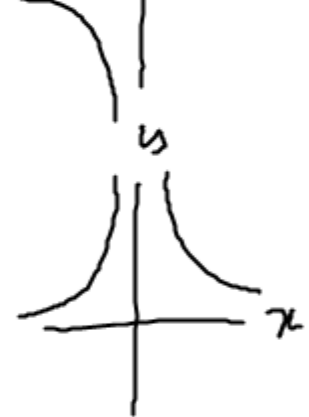


$$x^{-2} = \frac{1}{x^2}$$

$$f(x) = x^{-2}$$

$$x^{-4}$$

$$x^{-6}$$



11

Notizen:

$$y_1 = \frac{4}{3} * \pi * x^3$$

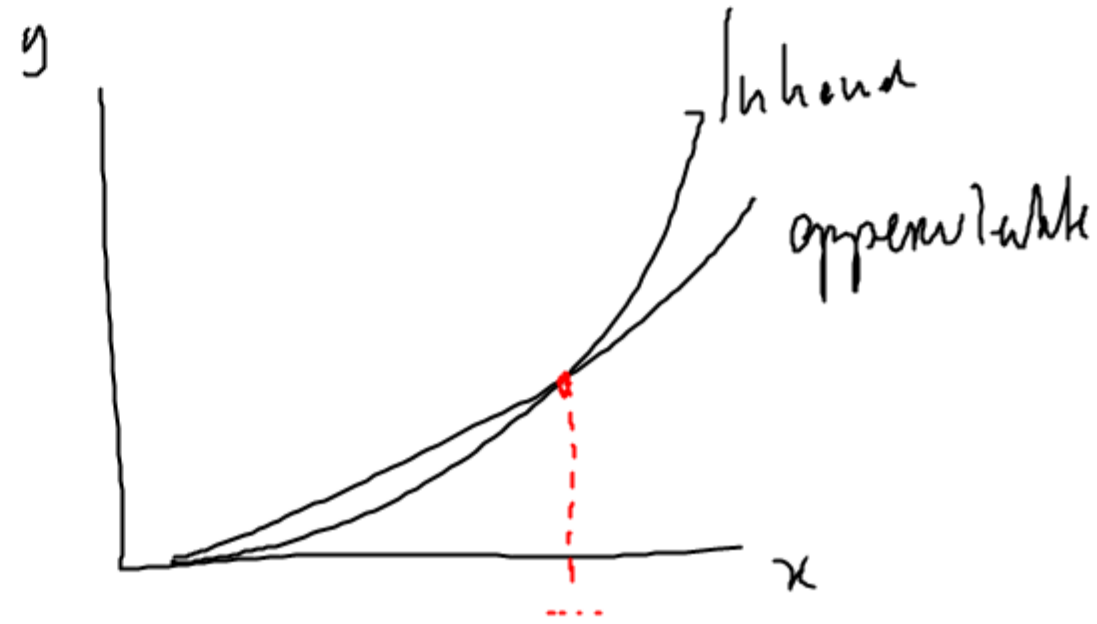
$$y_2 = 4 * \pi * x^2$$

$$x_{\min} = 0$$

$$x_{\max} = 4$$

$$y_{\min} = 0$$

$$y_{\max} = 250$$



calc wenn intersekt geht $x = \dots$

11c)

$$\left. \begin{aligned} I &= \frac{4}{3} * \pi * R^3 \\ O &= 4 * \pi * R^2 \end{aligned} \right) I = \frac{1}{3} * O * R$$

$$I = \frac{1}{3} * 4 * \pi * R^3$$

$$I = \frac{1}{3} * \underbrace{4 * \pi * R^2}_O * R$$

hd

$$\begin{cases} y = 2x \\ y = 3 \end{cases}$$

$$2 \cdot x = 3 \quad (: 2)$$

$$x = \frac{3}{2}$$

$$\begin{cases} y = 2x^{-1,5} \\ y = 3 \end{cases}$$

$$2 \cdot x^{-1,5} = 3 \quad (: 2)$$

$$x^{-1,5} = 1,5$$

$$x = 1,5^{\frac{1}{-1,5}} =$$

$$\begin{matrix} p \\ x = \text{getal} \\ \frac{1}{p} \end{matrix}$$

$$x = \text{getal}$$

0,2 opt als p even
1 opt als p oneven

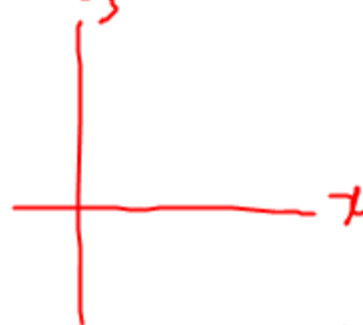
$$y_1 = 2x^{-1,5}$$

$$y_2 = 3$$

x_{\min} y_{\min}

x_{\max} y_{\max}

calc min/max intersect points...



$$\begin{aligned} y &= 2x^{0,5} \\ y &= 3 \end{aligned}$$

$$2x^{0,5} = 3$$

$$x^{0,5} = 1,5 \quad \frac{1}{0,5}$$

$$x = 1,5^{0,5}$$

$$x = 1,5^2$$

$$x = 2,25$$

$$\begin{aligned} y &= 2x^{1,5} \\ y &= 3 \end{aligned}$$

$$2x^{1,5} = 3$$

$$x^{1,5} = 1,5$$

$$x = 1,5^{\frac{1}{1,5}}$$

$$x = 1,5^{\frac{2}{3}} = \dots$$

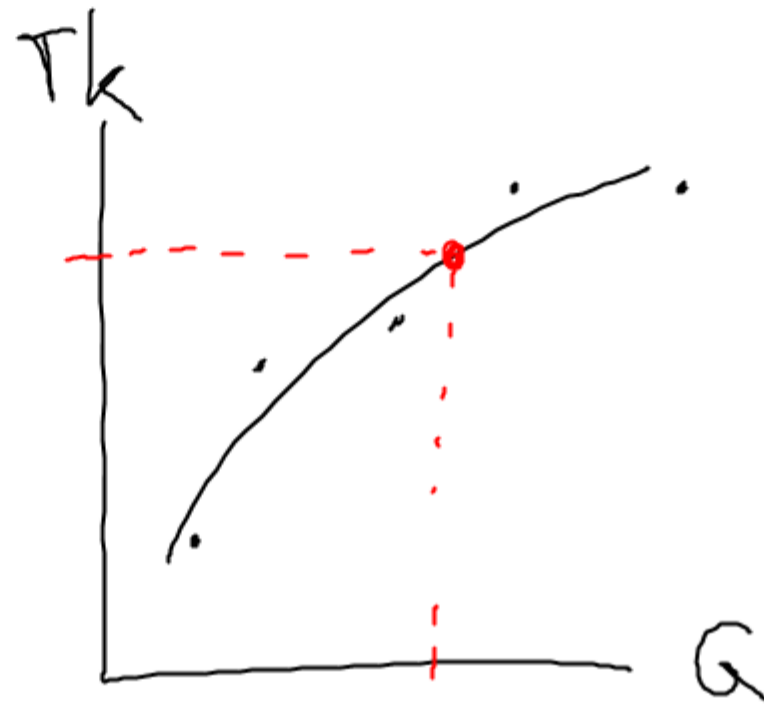
$$1,5 \wedge (2/3)$$

17

$$Tk = 25 \cdot Q^n$$

Q	Tk
200	600
350	840
500	1040
650	1270
1000	1580

Wat is n ?



23 begin 3 cl water W
5 cl siroep 5

antwoordenboekje

$$C = \frac{\text{siroep}}{\text{water}}$$

a $C = \frac{\text{siroep}}{\text{water} + \text{siroep}} = \frac{5}{8}$

b $C = \frac{5}{20 + 5} = \frac{5}{25} = \frac{1}{5}$

e omgekeerd
verhoudig
verband

c Zo veel mogelijk water dus bij $w = 30$

$$C = \frac{5}{5 + 30} = \frac{5}{35} = \frac{1}{7} \text{ (minimaal)}$$

d $C = \frac{5}{5 + w}$ gebroken verband

25 $I = 0,785 \cdot d^2 \cdot h$

a $d = 5$
 $h = 5$ invullen

$$I = 0,785 \cdot 5^2 \cdot 5$$

$$I = 98,125 \text{ cm}^3$$

b $d = h$ invullen

$$I = 0,785 \cdot d^2 \cdot d$$

$$I = 0,785 \cdot d^3$$

c

$$I = 0,785 d^2 \cdot h$$

$$I = 475$$

dus $475 = 0,785 \cdot d^2 \cdot h$

laat zien dat dit hetzelfde

is als $h = \frac{605}{d^2}$

$$475 = 0,785 \cdot d^2 \cdot h \quad (: 0,785)$$

$$605 = d^2 \cdot h \quad (: d^2)$$

$$h = \frac{605}{d^2}$$

d

$$h = \frac{605}{d^2}$$

als d groter dan h kleiner

als d 2 keer zo groot

$$2^2 = 4$$

dan h 4 keer zo klein

dit kan je ook met een getallenwoordbeeld vinden

$\times 2$ $\left(\begin{array}{l} \text{neem } d = 4 \quad \text{dan } h = \frac{605}{4^2} = 37,8 \\ \text{neem } d = 2 \quad \text{dan } h = \frac{605}{2^2} = 151,2 \end{array} \right) : 4$

2

$$h = \frac{605}{d^2} \quad \text{dus}$$

$$h \cdot d^2 = 605$$

dus een omgekeerd evenredig verband

↓

$$5 \times 605 = 3025$$

Wand

$$\frac{5 \times 475}{0,785} = 5 \times \frac{475}{0,785}$$
$$= 5 \times 605$$
$$= 3025$$

27

$$C = m \cdot 0,780 \text{ m}^2$$

a) als $n=0$ dann $C = m$. Warum?

$$C = m \cdot 0,780 \text{ m}^2$$

$$C = m \cdot 0,780^0$$

$$C = m \cdot 1$$

$$C = m$$

b

$$C = 0,5 \cdot 0,780 \tau^2$$

τ	τ^2	C
0	0	0,5
①	1	0,390 ~
②	4	~
③	9	. ~
4	16	.
5	25	.
⑥	36	~
$\sqrt{2}$	2	.

C *nee*

30 a

$$\text{afstand} = \text{snellheid} \times \text{tijd}$$

$$m = \frac{m}{s} \times s$$

Men: $a = v \cdot t$

$$\frac{a}{v} = t \quad \text{dus recht evenredig}$$

b $v = 60 \frac{\text{km}}{\text{h}}$
 $t = 0,5$) dus $a = 60 \frac{\text{km}}{\text{h}} \cdot 0,5 \text{ s}$

$$a = 16,7 \frac{\text{m}}{\text{s}} \cdot 0,5 \text{ s}$$

c van $\frac{\text{km}}{\text{h}}$ naar $\frac{\text{m}}{\text{s}}$ hoe doe je dat?
 delen door 3,6 !

$$1 \frac{\text{km}}{\text{h}} = \frac{1000 \text{ m}}{1 \text{ uur}} = \frac{1000 \text{ m}}{3600 \text{ s}} = \frac{1}{3,6} \frac{\text{m}}{\text{s}}$$

$$\text{dus } 60 \frac{\text{km}}{\text{h}} = \frac{60}{3,6} \frac{\text{m}}{\text{s}} \\ = 16,7 \frac{\text{m}}{\text{s}}$$

$$\text{dus } a = \frac{v}{3,6} \cdot t = \frac{1}{3,6} \cdot v \cdot t$$

d $b = \frac{1}{254 \cdot c} \cdot v^2$ $0 < c < 1$

$v = 80$

dus $b = \frac{1}{254 \cdot c} \cdot 80^2 = \frac{80^2}{254 \cdot c}$

$b = \frac{6400}{254 \cdot c}$

als b minimal dan $254 \cdot c$ max
dus $c = 1$

dus $b_{\min} = \frac{6400}{254 \cdot 1} = \dots$