



N°: 10, 8, 7

NAMES: Willeke Verduyn, Cédric Vandesteene, Luka Vanoverschelde

CLASS : 6MWE and 6LWE

NAME TEACHER: Els Merveillie

DATE: 15/05/2018

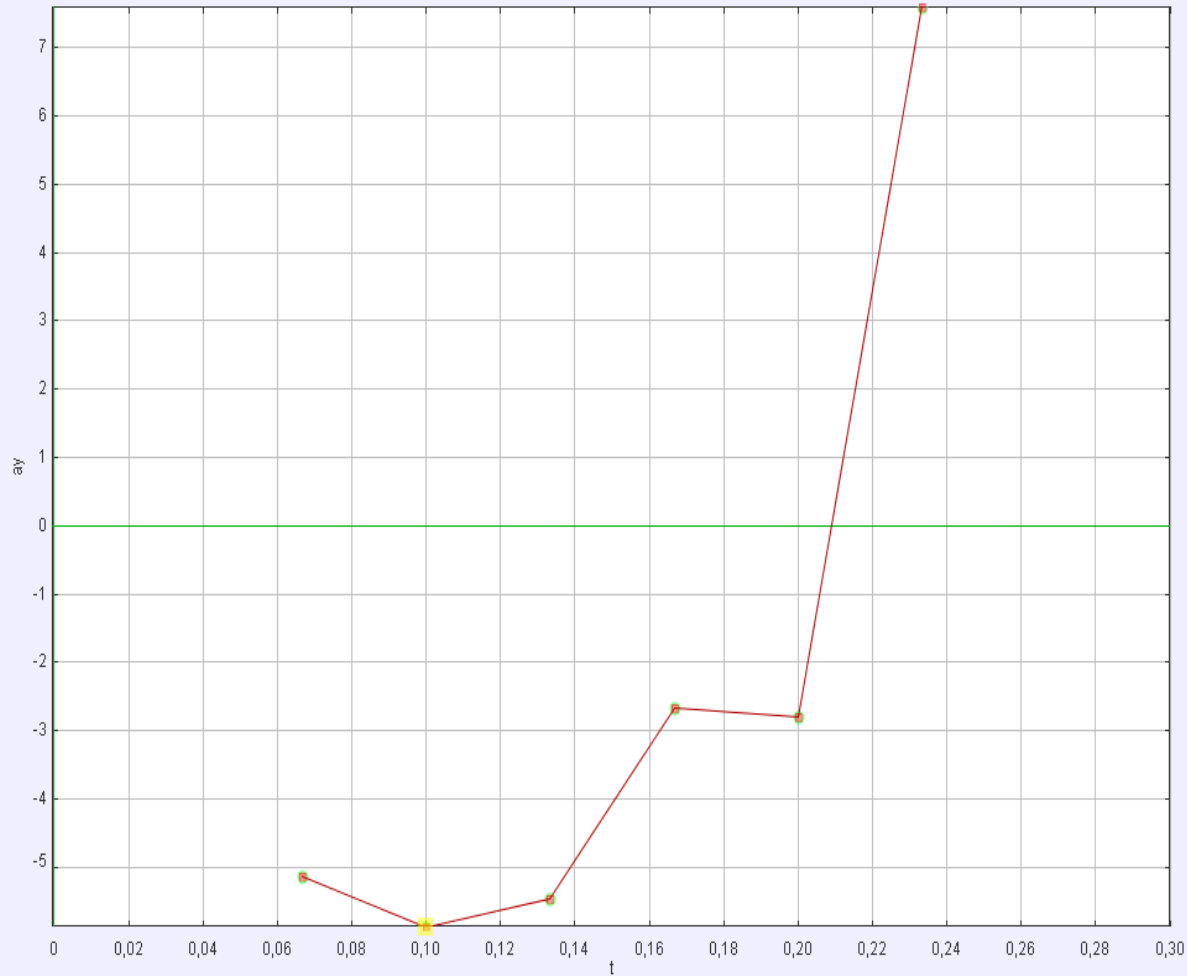
VRIJE ASO.SCHOOL

E-Twinning

mass_A

Meet Analyzeer

Databouwer... Vernieuw Help



max	1,000E-1	7,604E0	3,335E-1	1,038E-3	2,210E-1	-3,502E-1	-7,782E-3
min	1,000E-1	-5,870E0	-3,335E-1	-5,188E-4	-5,188E-4	-1,230E0	-7,782E-3
gemiddelde	1,000E-1	-2,390E0	3,335E-2	3,632E-4	1,211E-1	-8,151E-1	-7,782E-3
sd	<input type="checkbox"/>	5,084E0	2,377E-1	4,271E-4	8,514E-2	3,036E-1	<input type="checkbox"/>
se	<input type="checkbox"/>	2,076E0	9,704E-2	1,351E-4	2,692E-2	1,074E-1	<input type="checkbox"/>
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row	t	ay	ax	x	y	vy	vx
0	0			0,001	0,221		
1	0,033			0,001	0,214	-0,35	0
2	0,067	-5,136	-0,067	0,001	0,198	-0,521	-0,008
3	0,1	-5,87	-0,067	-0	0,179	-0,669	-0,008
4	0,133	-5,47	0,334	-0	0,153	-0,918	-0,008
5	0,167	-2,668	0,2	-0,001	0,118	-1,058	0,008
6	0,2	-2,801	0,133	0,001	0,082	-1,074	0,016
7	0,233	7,604	-0,334	0,001	0,046	-1,23	0,008
8	0,267			0,001	0,001	-0,7	0
9	0,3			0,001	-0,001		

Correlatie coefficient (R-kwadraat) ongedefinieerd

niet bewerkbaar

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max	1,000E-1	3,335E-1	1,038E-3	2,210E-1	-3,502E-1	-7,782E-3	7,604E0
min	1,000E-1	-3,335E-1	-5,188E-4	-5,188E-4	-1,230E0	-7,782E-3	-5,870E0
gemiddelde	1,000E-1	3,335E-2	3,632E-4	1,211E-1	-8,151E-1	-7,782E-3	-2,390E0
sd	<input type="checkbox"/>	2,377E-1	4,271E-4	8,514E-2	3,036E-1	<input type="checkbox"/>	5,084E0
se	<input type="checkbox"/>	9,704E-2	1,351E-4	2,692E-2	1,074E-1	<input type="checkbox"/>	2,076E0
n	1	6	10	10	8	1	6
markeringen	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
lijnen	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
stijl							
as	horiz	vert	vert	vert	vert	vert	vert
row	t	a_x	x	y	v_y	v_x	a_y
0	0		0,001	0,221			
1	0,033		0,001	0,214	-0,35	0	
2	0,067	-0,067	0,001	0,198	-0,521	-0,008	-5,136
3	0,1	-0,067	-0	0,179	-0,669	-0,008	-5,87
4	0,133	0,334	-0	0,153	-0,918	-0,008	-5,47
5	0,167	0,2	-0,001	0,118	-1,058	0,008	-2,668
6	0,2	0,133	0,001	0,082	-1,074	0,016	-2,801
7	0,233	-0,334	0,001	0,046	-1,23	0,008	7,604
8	0,267		0,001	0,001	-0,7	0	
9	0,3		0,001	-0,001			

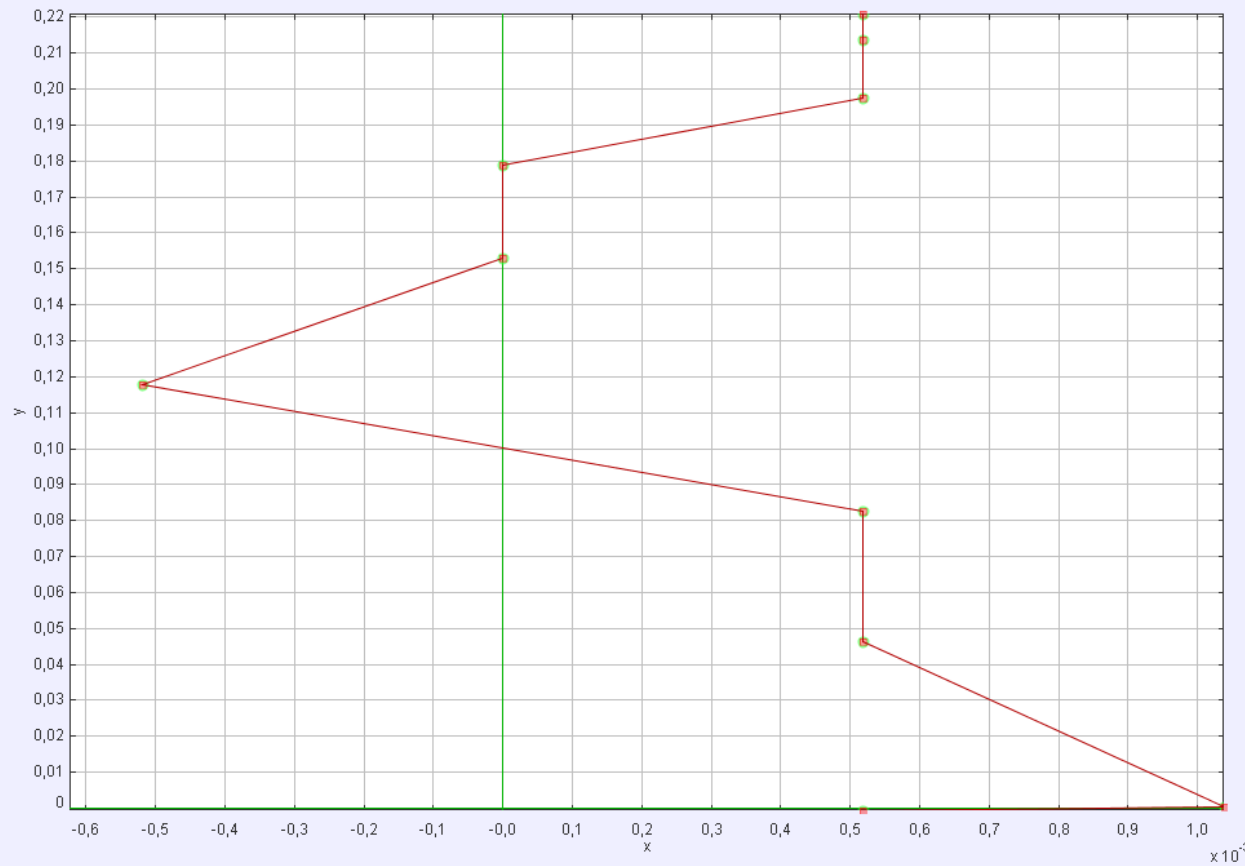
Correlatie coefficient (R-kwadraat) ongedefinieerd

niet bewerkbaar

mass_A

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max	1,038E-3	2,210E-1	1,000E-1	-3,502E-1	-7,782E-3	3,335E-1	7,604E0
min	-5,188E-4	-5,188E-4	1,000E-1	-1,230E0	-7,782E-3	-3,335E-1	-5,870E0
gemiddelde	3,632E-4	1,211E-1	1,000E-1	-8,151E-1	-7,782E-3	3,335E-2	-2,390E0
sd	4,271E-4	8,514E-2		3,036E-1		2,377E-1	5,084E0
se	1,351E-4	2,692E-2		1,074E-1		9,704E-2	2,076E0
n	10	10	1	8	1	6	6
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lijnen		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
stijl							
as	horiz	vert	vert	vert	vert	vert	vert
row	x	y	t	v _y	v _x	a _x	a _y
0	0,001	0,221	0				
1	0,001	0,214	0,033	-0,35	0		
2	0,001	0,198	0,067	-0,521	-0,008	-0,067	-5,136
3	-0	0,179	0,1	-0,669	-0,008	-0,067	-5,87
4	-0	0,153	0,133	-0,918	-0,008	0,334	-5,47
5	-0,001	0,118	0,167	-1,058	0,008	0,2	-2,668
6	0,001	0,082	0,2	-1,074	0,016	0,133	-2,801
7	0,001	0,046	0,233	-1,23	0,008	-0,334	7,604
8	0,001	0,001	0,267	-0,7	0		
9	0,001	-0,001	0,3				

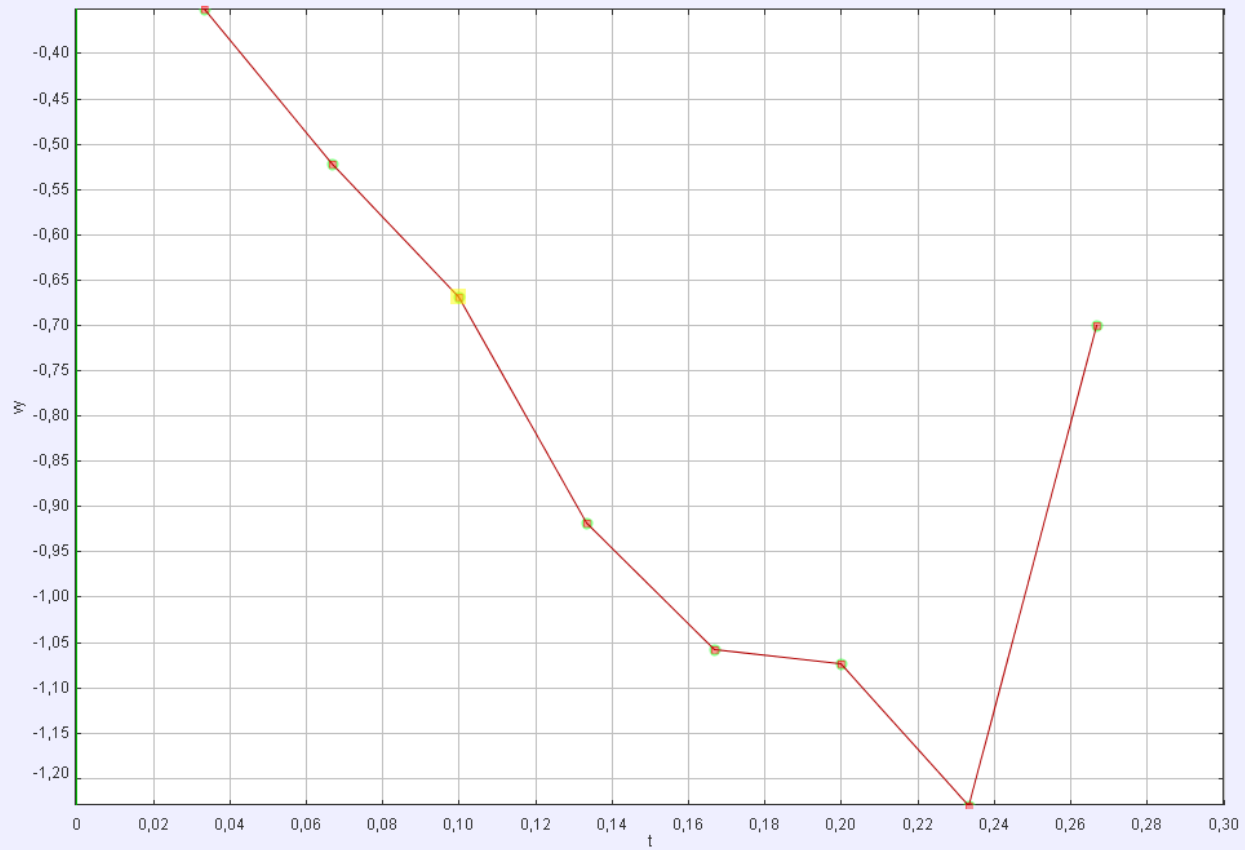
Correlatie coefficient (R-kwadraat) = 0,104

niet bewerkaar

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max	1,000E-1	-3,502E-1	-7,782E-3	1,038E-3	2,210E-1	3,335E-1	7,604E0
min	1,000E-1	-1,230E0	-7,782E-3	-5,188E-4	-5,188E-4	-3,335E-1	-5,870E0
gemiddelde	1,000E-1	-8,151E-1	-7,782E-3	3,632E-4	1,211E-1	3,335E-2	-2,390E0
sd	<input type="checkbox"/>	3,036E-1	<input type="checkbox"/>	4,271E-4	8,514E-2	2,377E-1	5,084E0
se	<input type="checkbox"/>	1,074E-1	<input type="checkbox"/>	1,351E-4	2,692E-2	9,704E-2	2,076E0
n	1	8	1	10	10	6	6
markeringen	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
lijnen	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
stijl							
as	horiz	vert	vert	vert	vert	vert	vert
row	t	vy	vx	x	y	ax	ay
0	0			0,001	0,221		
1	0,033	-0,35	0	0,001	0,214		
2	0,067	-0,521	-0,008	0,001	0,198	-0,067	-5,136
3	0,1	-0,669	-0,008	-0	0,179	-0,067	-5,87
4	0,133	-0,918	-0,008	-0	0,153	0,334	-5,47
5	0,167	-1,058	0,008	-0,001	0,118	0,2	-2,668
6	0,2	-1,074	0,016	0,001	0,082	0,133	-2,801
7	0,233	-1,23	0,008	0,001	0,046	-0,334	7,604
8	0,267	-0,7	0	0,001	0,001		
9	0,3			0,001	-0,001		

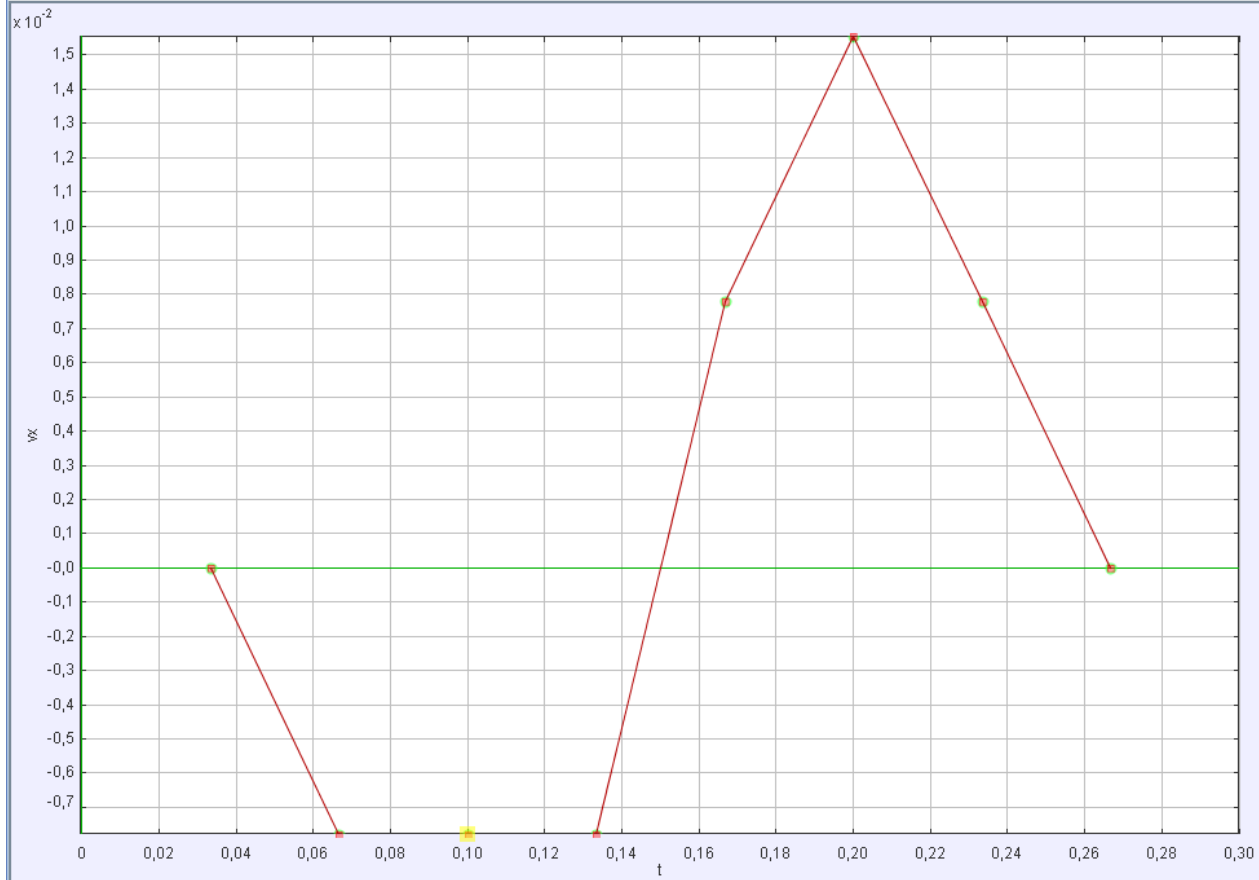
Correlatie coefficient (R-kwadraat) ongedefinieerd

niet bewerbaar

mass_A

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Databouwer... Vernieuw Help



max	1,000E-1	-7,782E-3	1,038E-3	2,210E-1	3,335E-1	7,604E0	-3,502E-1
min	1,000E-1	-7,782E-3	-5,188E-4	-5,188E-4	-3,335E-1	-5,870E0	-1,230E0
gemiddelde	1,000E-1	-7,782E-3	3,632E-4	1,211E-1	3,335E-2	-2,390E0	-8,151E-1
sd	<input type="checkbox"/>	<input type="checkbox"/>	4,271E-4	8,514E-2	2,377E-1	5,084E0	3,036E-1
se	<input type="checkbox"/>	<input type="checkbox"/>	1,351E-4	2,692E-2	9,704E-2	2,076E0	1,074E-1
n	1	1	10	10	6	6	8
markeringen	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
lijnen	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
stijl							
as	horiz	vert	vert	vert	vert	vert	vert
row	t	v_x	x	y	a_x	a_y	v_y
0	0		0,001	0,221			
1	0,033	0	0,001	0,214			-0,35
2	0,067	-0,008	0,001	0,198	-0,067	-5,136	-0,521
3	0,1	-0,008	-0	0,179	-0,067	-5,87	-0,669
4	0,133	-0,008	-0	0,153	0,334	-5,47	-0,918
5	0,167	0,008	-0,001	0,118	0,2	-2,668	-1,058
6	0,2	0,016	0,001	0,082	0,133	-2,801	-1,074
7	0,233	0,008	0,001	0,046	-0,334	7,604	-1,23
8	0,267	0	0,001	0,001			-0,7
9	0,3		0,001	-0,001			

Correlatie coefficient (R-kwadraat) ongedefinieerd

niet bewerkaar

mass_A

Meet Analyzeer

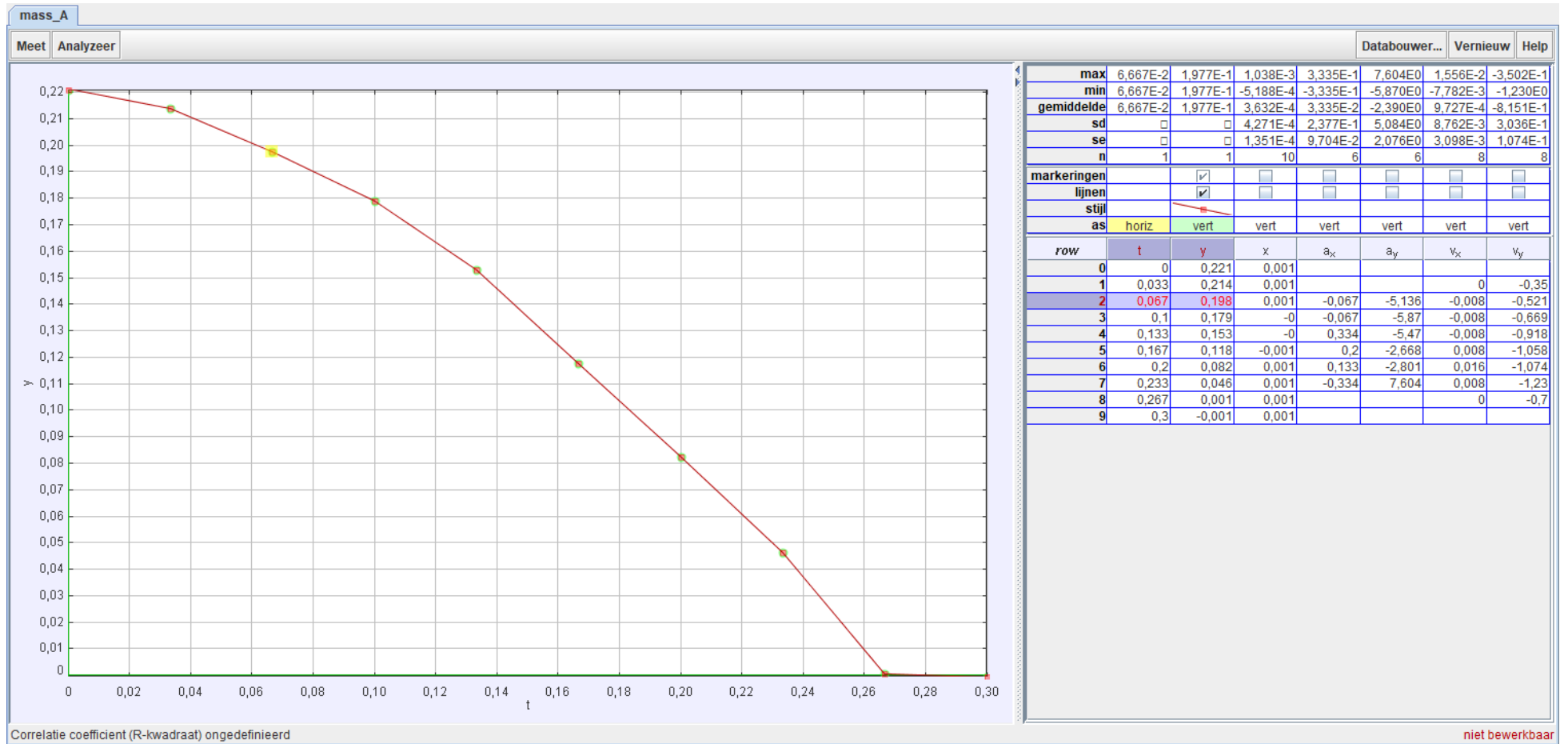
Databouwer... Vernieuw Help



max	6,667E-2	1,038E-3	1,977E-1	3,335E-1	7,604E0	1,556E-2	-3,502E-1
min	6,667E-2	-5,188E-4	1,977E-1	-3,335E-1	-5,870E0	-7,782E-3	-1,230E0
gemiddelde	6,667E-2	3,632E-4	1,977E-1	3,335E-2	-2,390E0	9,727E-4	-8,151E-1
sd	<input type="checkbox"/>	4,271E-4	<input type="checkbox"/>	2,377E-1	5,084E0	8,762E-3	3,036E-1
se	<input type="checkbox"/>	1,351E-4	<input type="checkbox"/>	9,704E-2	2,076E0	3,098E-3	1,074E-1
n	1	10	1	6	6	8	8
markeringen	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
lijnen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
stijl							
as	horiz	vert	vert	vert	vert	vert	vert
row	t	x	y	a _x	a _y	v _x	v _y
0	0	0,001	0,221				
1	0,033	0,001	0,214			0	-0,35
2	0,067	0,001	0,198	-0,067	-5,136	-0,008	-0,521
3	0,1	-0	0,179	-0,067	-5,87	-0,008	-0,669
4	0,133	-0	0,153	0,334	-5,47	-0,008	-0,918
5	0,167	-0,001	0,118	0,2	-2,668	0,008	-1,058
6	0,2	0,001	0,082	0,133	-2,801	0,016	-1,074
7	0,233	0,001	0,046	-0,334	7,604	0,008	-1,23
8	0,267	0,001	0,001			0	-0,7
9	0,3	0,001	-0,001				

Correlatie coefficient (R-kwadraat) ongedefinieerd

niet bewerkbaar



M= 50 kg (a person)

$$Y_{\text{beginning}} = 0.214 \text{ m}$$

$$Y_{\text{middle}} = 0.118 \text{ m}$$

$$Y_{\text{end}} = 0.046 \text{ m}$$

Berekeningen:

$$V_{\text{beginning}} (t= 0.033) = 0.35 \text{ m/s}$$

$$V_{\text{middle}} (t= 0.167) = 1.058030245 \text{ m/s}$$

$$V_{\text{end}} (t= 0.267) = 1.230026016$$

The Velocity increases until the end.

$$\left. \begin{array}{l} a_x(t) \\ a_y(t) \end{array} \right\} \mathbf{a} =$$

$$a_{x, \text{beginning}} (t=0.067) = 5.136436995 \text{ m/s}^2$$

$$a_{x, \text{middle}} (t= 0.167) = 2.67548575 \text{ m/s}^2$$

$$a_{x, \text{end}} (t= 0.233) = 7.611331815 \text{ m/s}^2$$

$$\mathbf{E_{kin} = (m \cdot v^2) / 2}$$

$$E_{\text{kin, beginning}} = (50 * (0.35)^2) / 2 = 3.0625 \text{ J}$$

$$E_{\text{kin, middle}} = (50 * (1.058030245)^2) / 2 = 27.98569998 \text{ J}$$

$$E_{\text{kin, end}} = (50 * (1.230026016)^2) / 2 = 1.322799201 \text{ J}$$

$$\mathbf{E_{pot} = m * g * h}$$

$$E_{\text{pot, beginning}} = 50 * 9.81 * 0.214 = 104.967 \text{ J}$$

$$E_{\text{pot, middle}} = 50 * 9.81 * 0.018 = 57.879 \text{ J}$$

$$E_{\text{pot, end}} = 50 * 9.81 * 0.046 = 22.563 \text{ J}$$

$$E_{\text{mech}} = E_{\text{kin}} + E_{\text{pot}}$$

$$E_{\text{mech, beginning}} = 3.0625 + 104.967 = 108.0295 \text{ J}$$

$$E_{\text{mech, middle}} = 27.98569998 + 57.879 = 85.86469998 \text{ J}$$

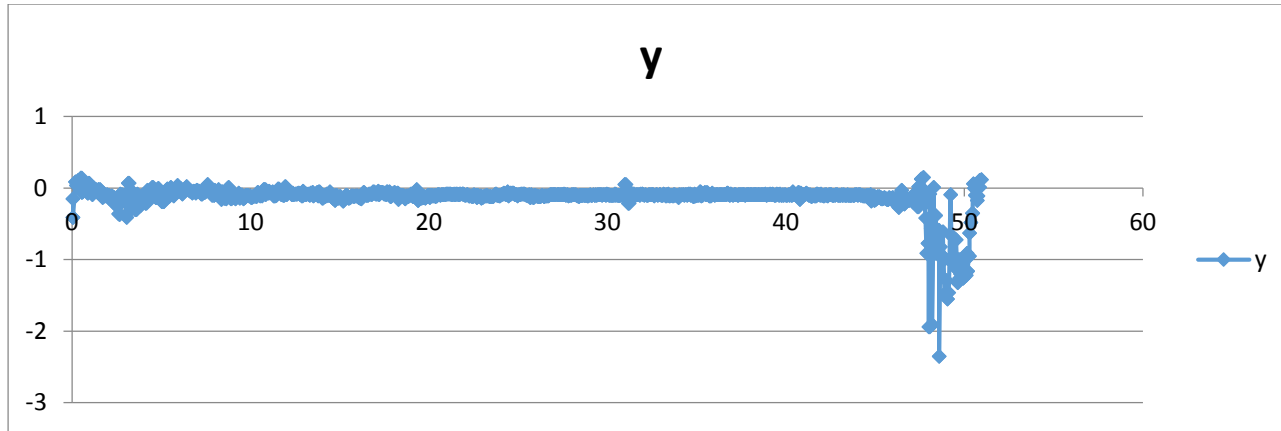
$$E_{\text{mech, end}} = 1.322799201 + 22.563 = 23.8857992 \text{ J}$$

Table with energy

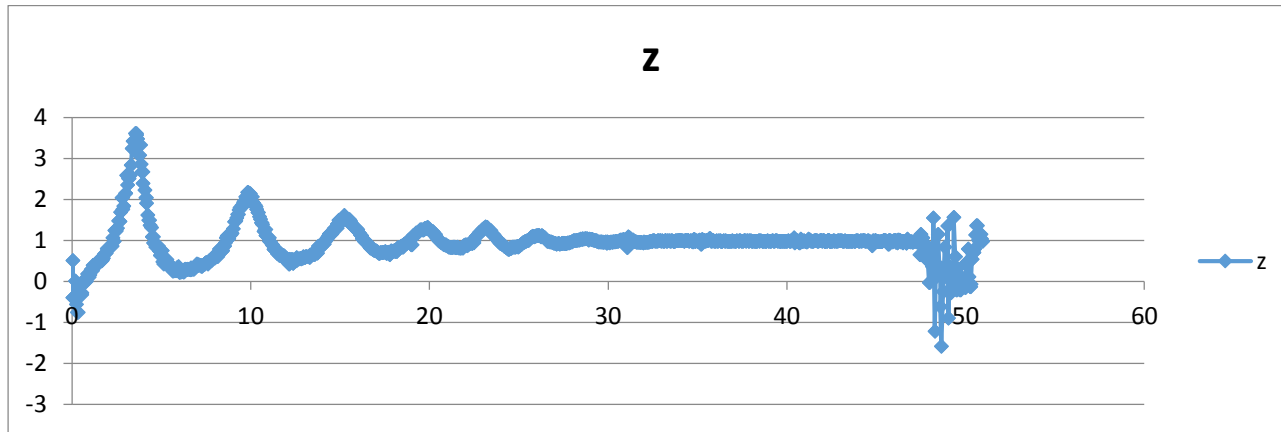
	<u>E_{kin}</u>	<u>E_{pot}</u>	<u>E_{mech}</u>
Beginning	3.0625	104.967	108.0295
Middle	27.98569998	57.879	85.86469998
End	1.322799201	22.563	23.8857992
average	10.790333	61.803	72.61516633

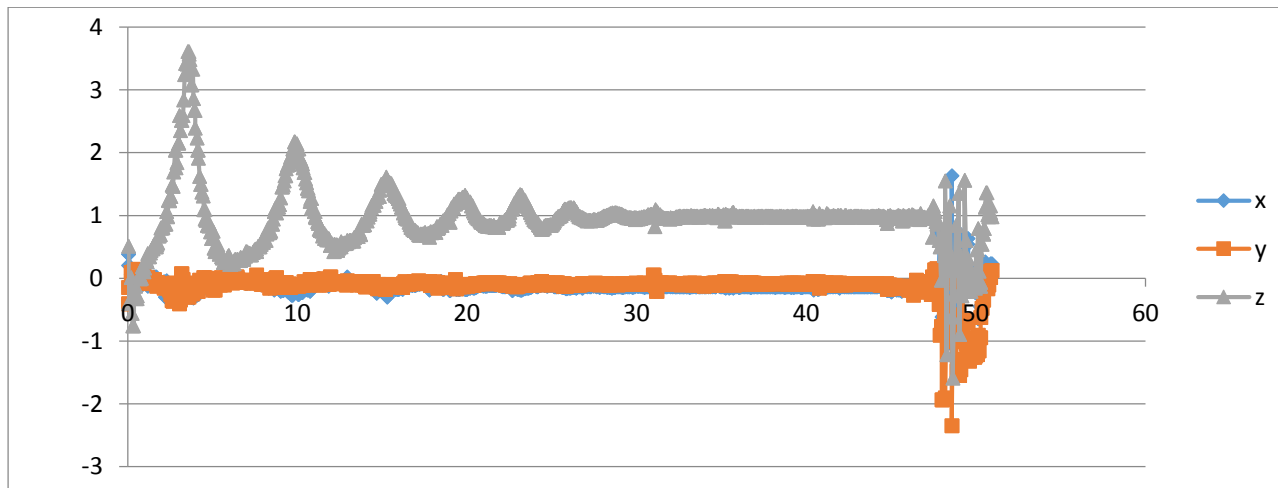
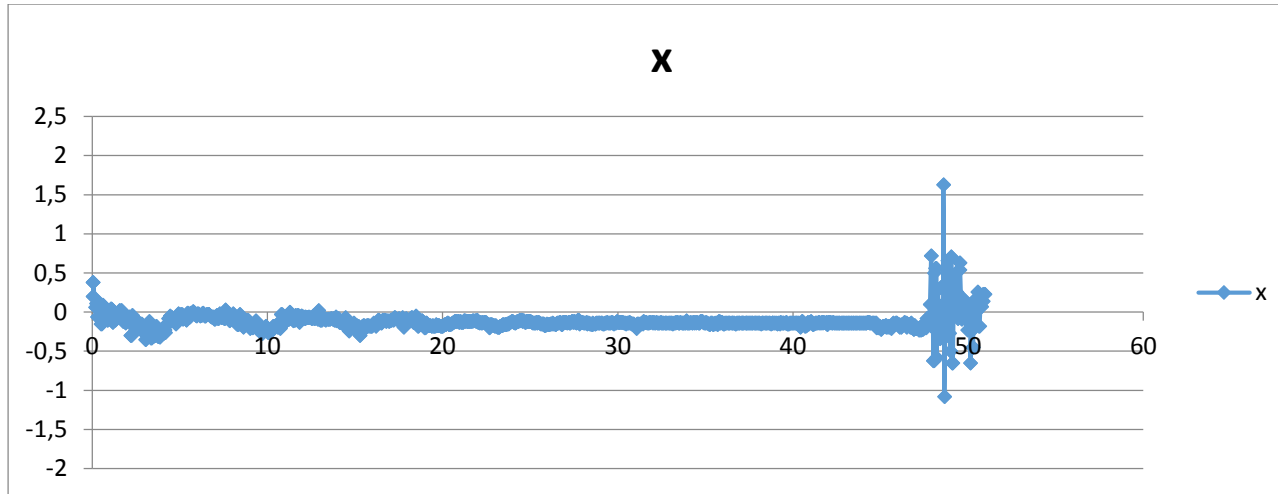
Conclusion

As you can see in our measurements and calculations the mechanic energy decreases. This can be explained because the attraction brakes at the bottom, so there's a decline in kinetic energy as well as gravitational potential energy.



In this graph we can see how much the model climbs during the duration of the carousel





In this graph we can see all the types of displacement that made the model during the execution of the test