Using the 30m and 60m to Estimate Other Sprint Times by C. D. Chester

Using Brian Mackenzie's 30m to 250m calculator[1] … again … I created regression models of his calculator's output, this time with a focus on using the 30m and 60m to approximate the 60m, 100m, and 200m respectively. I looked for the two best results, if two of them were accurate enough for my taste.[2] It yielded these results.[3]

30m to 60m

$$60m \approx -0.12821661[(30m)^2] + 2.35255(30m) - 0.56097$$

$$60m \approx \ln(30m) - 0.510062767$$

30m to 100m

$$100m \approx 0.0422[(30m)^2] + 1.5991(30m) + 3.8289$$

30m to 200m

$$200m \approx -0.0736433[(30m)^2] + 4.745224(30m) + 4.12714$$

$$200m \approx (7.5872)[(30m)^{0.765977688}]$$

60m to 100m

$$100m \approx 0.209354[(60m)^2] - 1.40204(60m) + 10.7316463$$

$$100m \approx (1.4223239)[(60m)^{1.065671812}]$$

60m to 200m

$$200m \approx 0.2940943[(60m)^2] - 0.8804(60m) + 14.29063855$$

$$200m \approx (8.19498)[(1.1557371)^{60m}]$$

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[1] 30m to 250m time Predictions
https://www.brianmac.co.uk/sprints/pred250.htm

[2] I try to get 99.99% accuracy or higher when compared to the data modeled from.

[3] For more info. refer to the Figures on the following pages.

data

No.	x	y
1	3.53	6.15
2	4	6.79
3	4.5	7.43
4	5	8
5	5.5	8.5
6	6	8.94
7	6.03	8.96

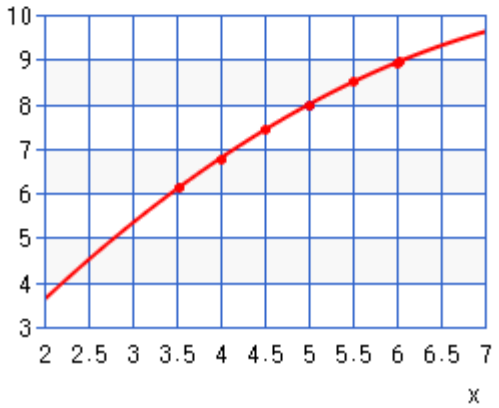
(Inc/Dec of the row)

select: Quadratic regression $y=A+Bx+Cx^2$

estimate: x = 5

Execute Clear Store/Read Print 18dgt

function	value
mean of x	4.93714285714285714
mean of y	7.82428571428571429
correlation coefficient r	0.999992763337311797
A	-0.5609665118473
B	2.35255060477051
C	-0.128216609165389
→ estimate of y	7.996371282870548



30m to 60m (1)

data

No.	x	y
1	3.53	6.15
2	4	6.79
3	4.5	7.43
4	5	8
5	5.5	8.5
6	6	8.94
7	6.03	8.96

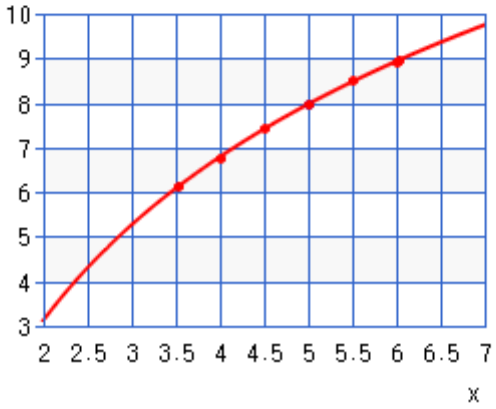
(Inc/Dec of the row)

select: Logarithmic regression y=A+Bln(x)

estimate: x = 5

Execute Clear Store/Read Print 18dgt

function	value
mean of x	4.85104714407624703
mean of y	7.82428571428571429
correlation coefficient r	0.9999359604172977
A	-0.510062766904424
B	5.2775943803381906
→ estimate of y	7.98389771526101339



30m to 60m (2)

data

No.	x	y
1	3.53	10
2	4	10.9
3	4.5	11.88
4	5	12.88
5	5.5	13.9
6	6	14.95
7	6.03	15

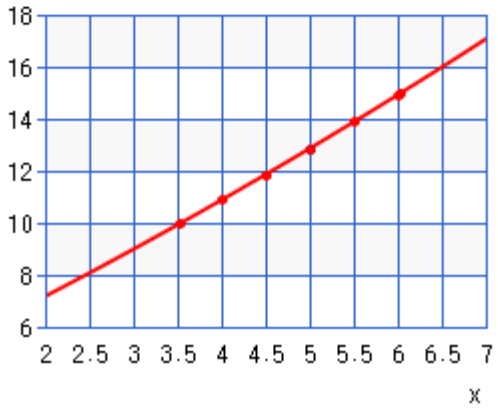
(Inc/Dec of the row)

select: Quadratic regression $y=A+Bx+Cx^2$

estimate: x = 5

Execute Clear Store/Read Print 18dgt

function	value
mean of x	4.93714285714285714
mean of y	12.7871428571428571
correlation coefficient r	0.999998065798553447
A	3.8288882519552
B	1.59909808318151
C	0.042212321344045
→ estimate of y	12.879686701463901



30m to 100m

data

No.	x	y
1	3.53	19.96
2	4	21.93
3	4.5	23.99
4	5	26.01
5	5.5	28
6	6	29.95
7	6.03	30.06

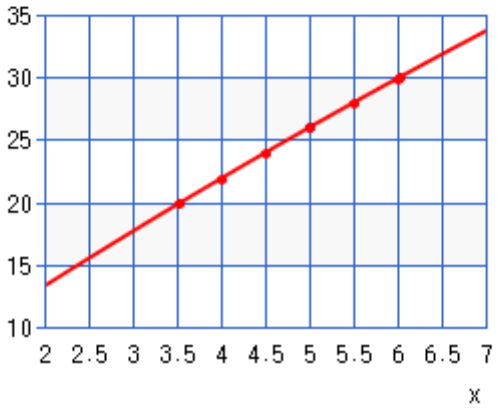
(Inc/Dec of the row)

select: Quadratic regression $y=A+Bx+Cx^2$

estimate: x = 5

Execute Clear Store/Read Print 18dgt

function	value
mean of x	4.93714285714285714
mean of y	25.7
correlation coefficient r	0.999999862850929115
A	4.1271397812616
B	4.7452239571195
C	-0.07364329553623
→ estimate of y	26.01217717845319



30m to 200m (1)

data

No.	x	y
1	3.53	19.96
2	4	21.93
3	4.5	23.99
4	5	26.01
5	5.5	28
6	6	29.95
7	6.03	30.06

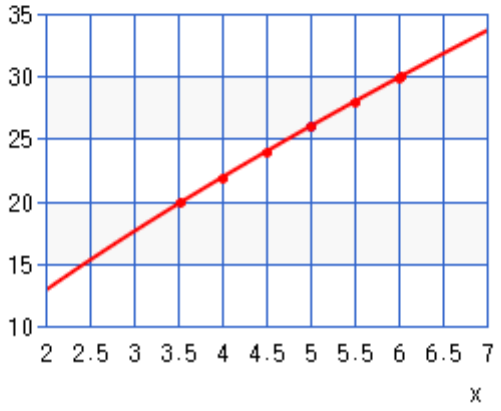
(Inc/Dec of the row)

select: Power regression $y=Ax^B$

estimate: x = 5

Execute Clear Store/Read Print 18dgt

function	value
mean of x	4.85104714407624703
mean of y	25.434091480801051
correlation coefficient r	0.9999879730223887
A	7.587200169837507
B	0.76597768797936873
→ estimate of y	26.0301679299586619



30m to 200m (2)

data

No.	x	y
1	6.15	10
2	6.5	10.48
3	7	11.21
4	7.5	12
5	8	12.89
6	8.5	13.9
7	8.96	15.01

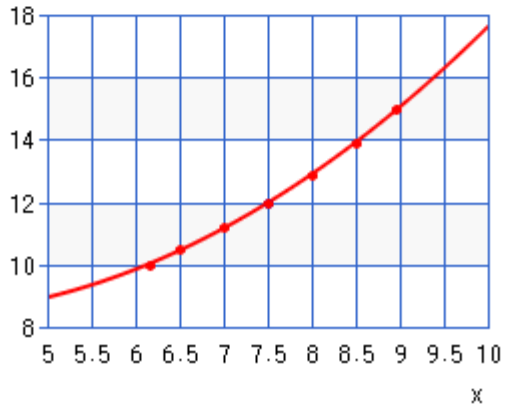
(Inc/Dec of the row)

select: Quadratic regression $y=A+Bx+Cx^2$

estimate: x = 7.5

Execute Clear Store/Read Print 18dgt

function	value
mean of x	7.51571428571428571
mean of y	12.2128571428571429
correlation coefficient r	0.999861794334653095
A	10.73164627136877
B	-1.40203956253712
C	0.209354035421056
→ estimate of y	11.992514044774758



60m to 100m (1)

data

No.	x	y
1	6.15	10
2	6.5	10.48
3	7	11.21
4	7.5	12
5	8	12.89
6	8.5	13.9
7	8.96	15.01

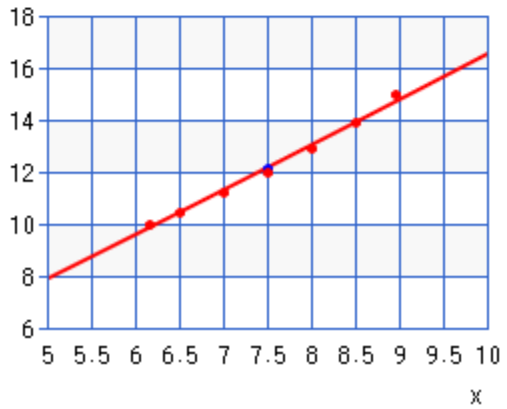
(Inc/Dec of the row)

select: Power regression $y=Ax^B$

estimate: x = 7.5

Execute Clear Store/Read Print 18dgt

function	value
mean of x	7.4540955748221989
mean of y	12.0972100500672728
correlation coefficient r	0.996058535157365
A	1.4223238981394597
B	1.06567181190312954
→ estimate of y	12.1766165291572584



60m to 100m (2)

data

No.	x	y
1	6.15	19.96
2	6.5	21.02
3	7	22.58
4	7.5	24.25
5	8	26.03
6	8.5	28
7	8.96	30.06

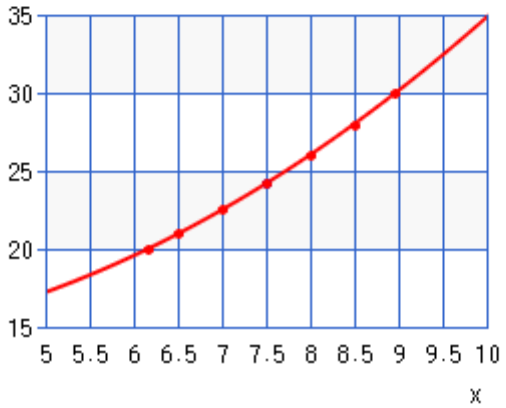
(Inc/Dec of the row)

select: Quadratic regression $y=A+Bx+Cx^2$

estimate: x = 7.5

Execute Clear Store/Read Print 18dgt

function	value
mean of x	7.5157142857142857
mean of y	24.557142857142857
correlation coefficient r	0.999931277313886291
A	14.2906385512582
B	-0.8803928398991
C	0.294094293048861
→ estimate of y	24.230496236013091



60m to 200m (1)

data

No.	x	y
1	6.15	19.96
2	6.5	21.02
3	7	22.58
4	7.5	24.25
5	8	26.03
6	8.5	28
7	8.96	30.06

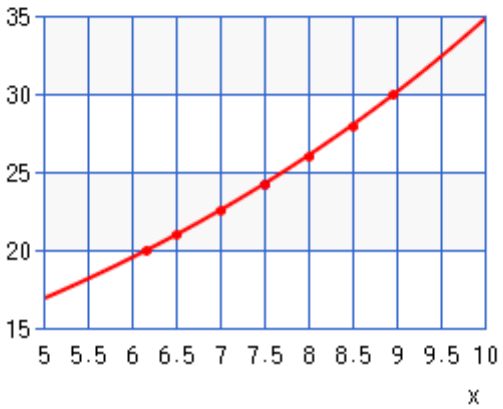
(Inc/Dec of the row)

select: ab-Exponential regression $y=AB^x$

estimate: x = 7.5

Execute Clear Store/Read Print 18dgt

function	value
mean of x	7.51571428571428571
mean of y	24.3208408829069677
correlation coefficient r	0.999936698033027
A	8.194979818147302
B	1.15573710102025959
→ estimate of y	24.2655869788354384



60m to 200m (2)