The Well-Constructed Optimal Paradigm of One-Dimensional Aimed Movement Based on the Fitting Error Theorem

# 1. Fitting expressions for Minitab corresponding to Table 1

It is not case sensitive.

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| Paradigm number | Fitting expression |
| E\_0 | (x1+x2\*ln(a/w+1))\*\*2 |
| E\_1 | x1+x2\*ln(a/w+1) |
| E\_2 | x1+x2\*ln(a)-x3\*ln(w) |
| E\_3 | x1+x2\*ln(a/w+1)-x3\*a\* ln(a/w+1) |
| E\_4 | x1+x2\*a+x3\*(1/w-1) |
| E\_5 | x1\*a\*\*x2\*w\*\*x3 |
| E\_6 | x1+x2\*sqrt(a/w) |
| E\_7 | x1+x2\*sqrt(a) |
| E\_8 | x1+x2\*a+x3\*(1/w)+ x4\*w |
| E\_9 | x1+x2\*a+x3\*(1/w)+ x4\*w+x5/(w\*w) |
| E\_10 | x1+x2\*a+x3\*(1/w)+ x4\*w+x5/(w\*w)+x6\*(w\*w) |
| E\_11 | x1+x2\*a+x3\*(1/w)+ x4\*w+x5/(w\*w)+x6\*sqrt(a/w) |
| E\_12 | x1+x2\*a+x3\*(1/w)+ x4\*w+x5/(w\*w)+x6\*sqrt(a/w)+x7\*ln(a/w+1) |
| E\_13 | x1+x2\*a+x3\*(1/w)+x4\*w+x5/(w\*w)+x6\*sqrt(a/w)+x7\*sqrt(1/w)+x8\*ln(a/w+1) |
| E\_14 | x1+x2\*a+x3\*(1/w)+ x4\*w+x5/(w\*w)+x6\*sqrt(a/w)+x7\*sqrt(a)+x8\*ln(a/w+1) |
| E\_15 | x1+x2\*a+x3\*(1/w)+x4\*w+x5/(w\*w)+x6\*sqrt(a/w)+x7\*sqrt(1/w)+x8\*ln(a/w+1)+x9\*sqrt(a) |
| E\_16 | x1+x2\*a+x3\*(1/w)+ x4\*w+x5\*sqrt(a/w)+x6\*sqrt(1/w)+x7\*ln(a/w+1)+x8\*sqrt(a) |
| E\_17 | x1+x2\*a+x3\*(1/w)+ x4\*w+x5\*sqrt(a/w)+x6\*sqrt(1/w)+x7\*ln(a/w+1)+x8\*sqrt(a)+x9\*sin(x10\*a/w) |
| E\_18 | x1+x2\*a+x3\*(1/w)+ x4\*w+x5\*sqrt(a/w)+x6\*sqrt(1/w) +x7\*ln(a/w+1)+x8\*sqrt(a)+x9\*(a/w) |
| E\_19 | x1+x2\*a+x3\*(1/w)+x4\*sqrt(a/w)+x5\*sqrt(1/w)+x6\*ln(a/w+1)+x7\*sqrt(a)+x8/a |
| E\_20 | x1+x2\*a+x3\*(1/w)+x4\*sqrt(a/w)+x5\*sqrt(1/w)+x6\*ln(a/w+1)+x7\*sqrt(a) |
| E\_21 | x1+x2\*a+x3\*(1/w)+ x4\*w+x5\*sqrt(a/w)+x6\*sqrt(1/w)+x7\*ln(a/w+1)+x8\*sqrt(a) +x9/a |

# 2. Data sets

The first and second data sets are acquired by the program of Fig. 2. The data in the two data sets have their own fluctuations. They do not show strict rules as the historical data set.

There are five sheets in the Excel file. The **first sheet** shows the first dataset when A=A1+A2. The **second sheet** shows the first dataset when A=A1+A2+W/2. The **third sheet** shows the second dataset. The **fourth sheet** shows the historical dataset from one experiment of Fitts (1954). The **fifth sheet** shows the value differences between the fitted E\_16 and E\_1, and also values of the E\_16 and E\_1.

In the second dataset, there are a special situation when two rows have the same *W* and *A* values. This is because there are two separate and independent experimental groups with the same *W* and *A* values.