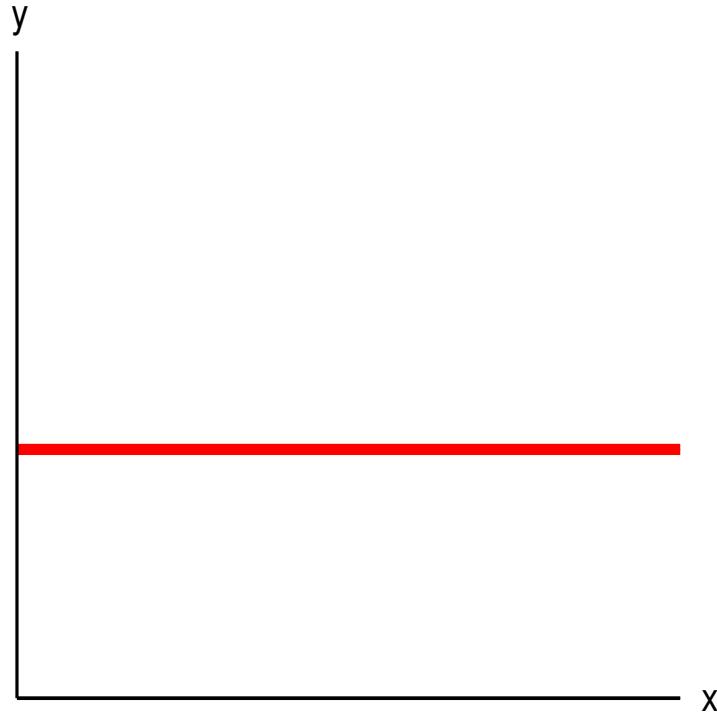


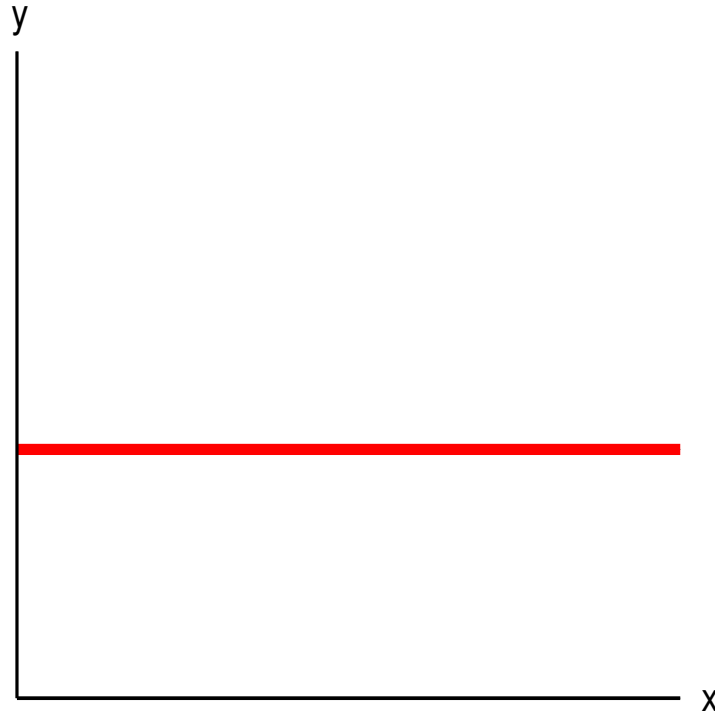
Example 1

Determine a linear model whose expected values fit the following graph:



Example 1

Determine a linear model whose expected values fit the following graph:

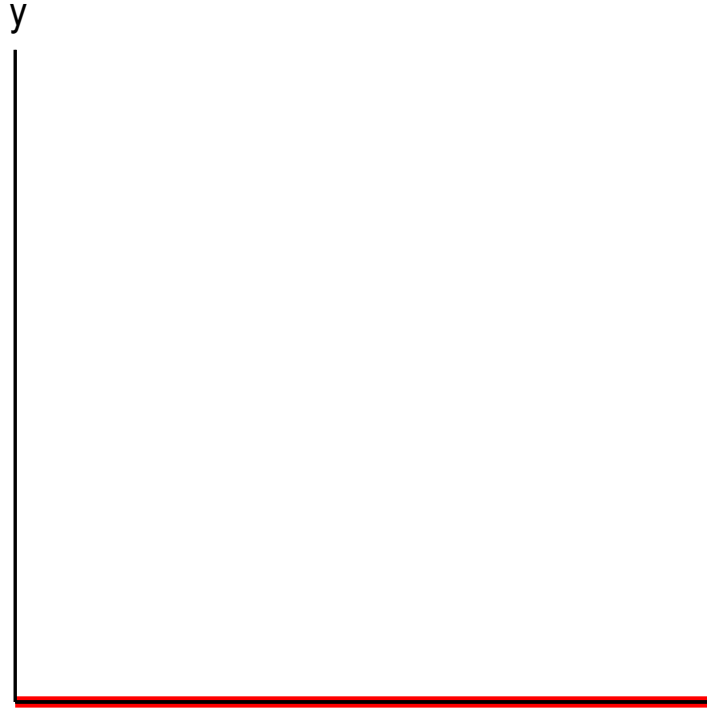


Solution:

$$y_i = \mu + e_i$$

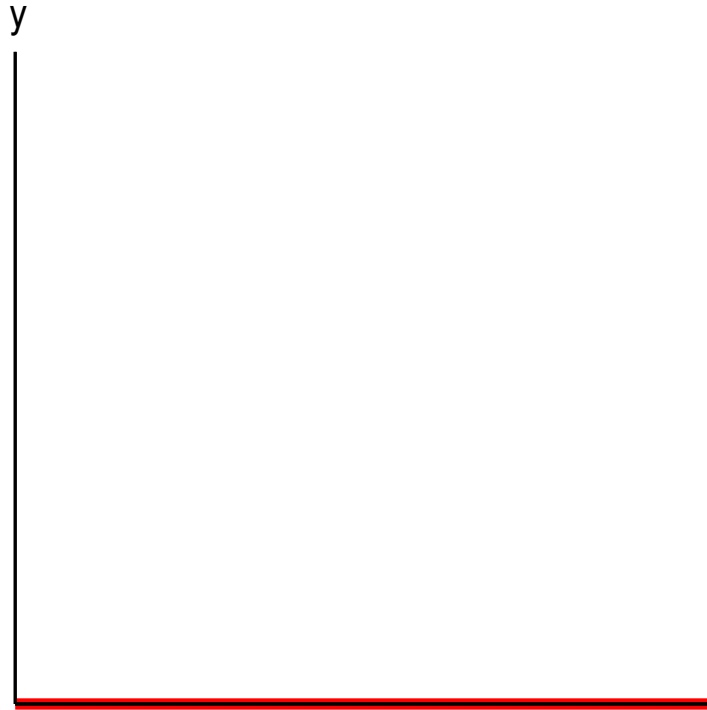
Example 2

Determine a linear model whose expected values fit the following graph:



Example 2

Determine a linear model whose expected values fit the following graph:

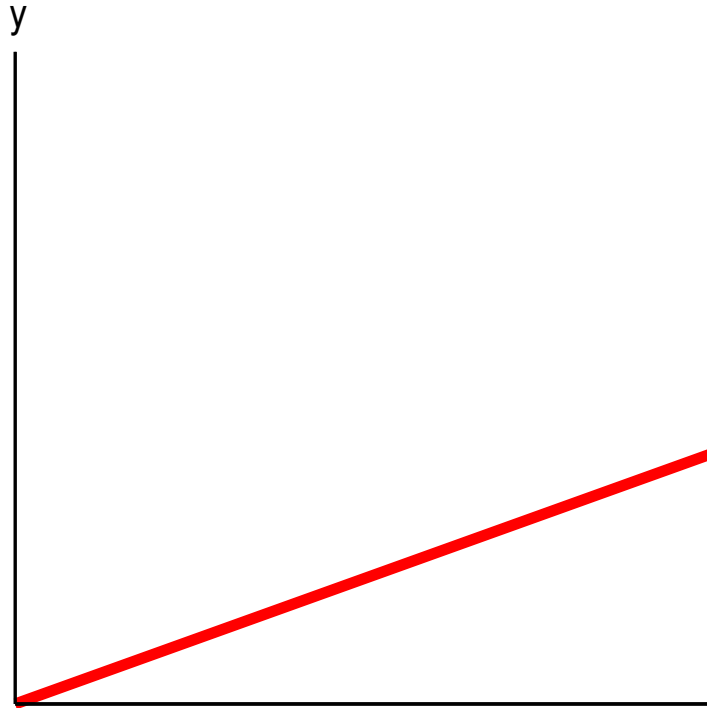


Solution:

$$y_i = e_i$$

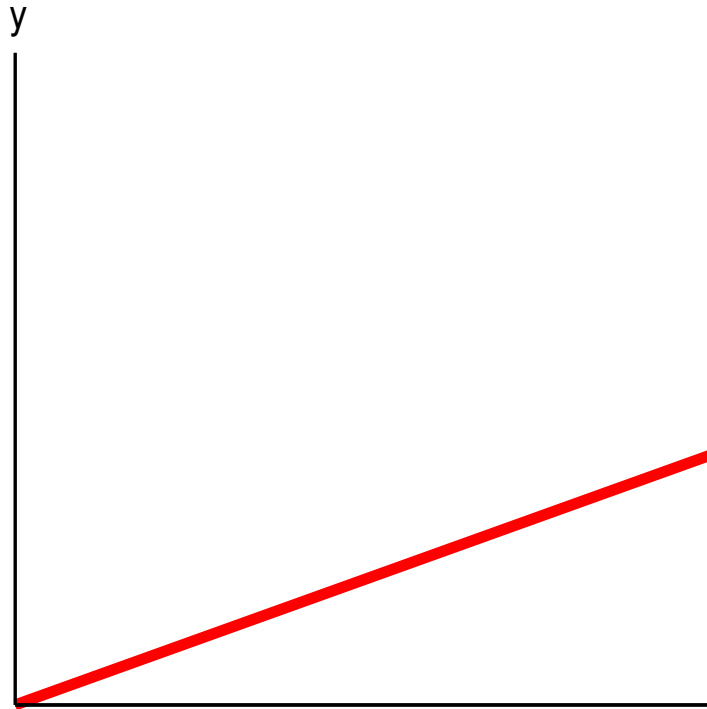
Example 3

Determine a linear model whose expected values fit the following graph:



Example 3

Determine a linear model whose expected values fit the following graph:

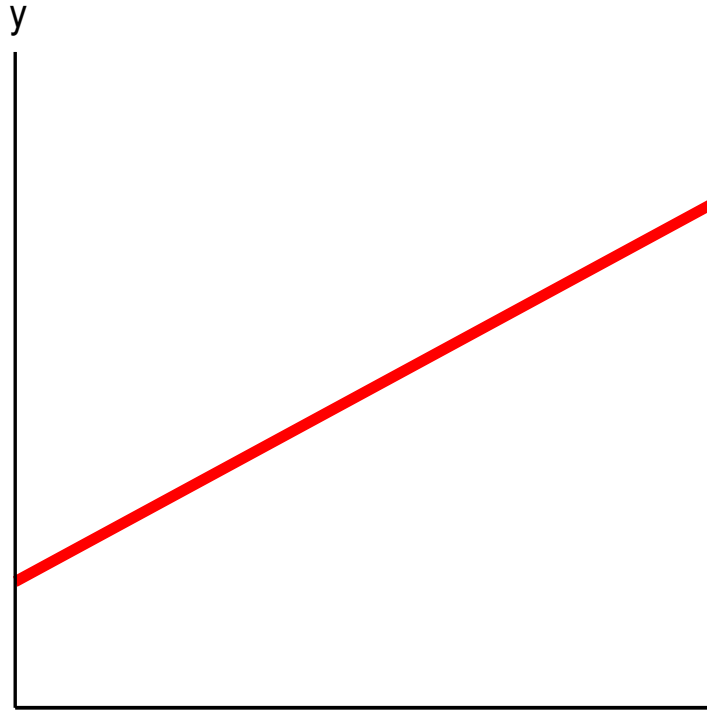


Solution:

$$y_i = \beta_1 X_i + e_i$$

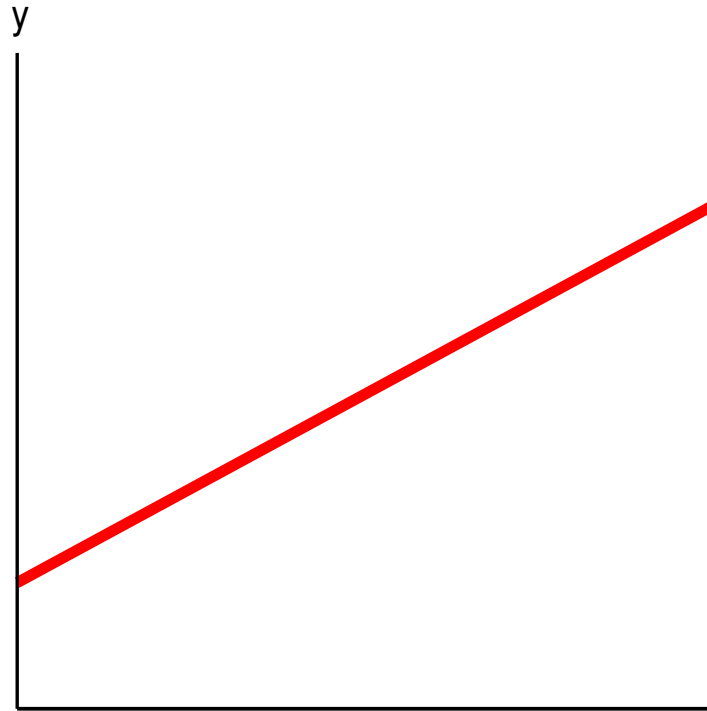
Example 4

Determine a linear model whose expected values fit the following graph:



Example 4

Determine a linear model whose expected values fit the following graph:

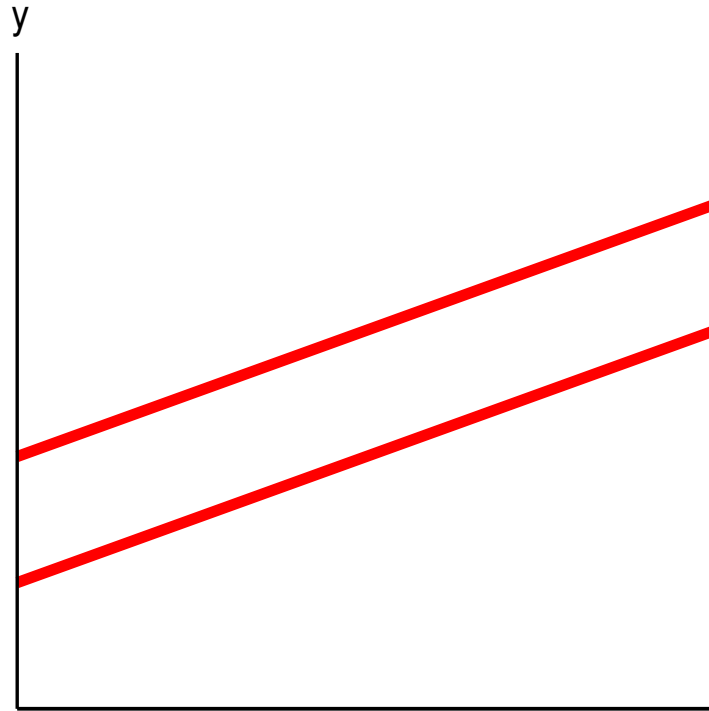


Solution:

$$y_i = \beta_0 + \beta_1 X_i + e_i$$

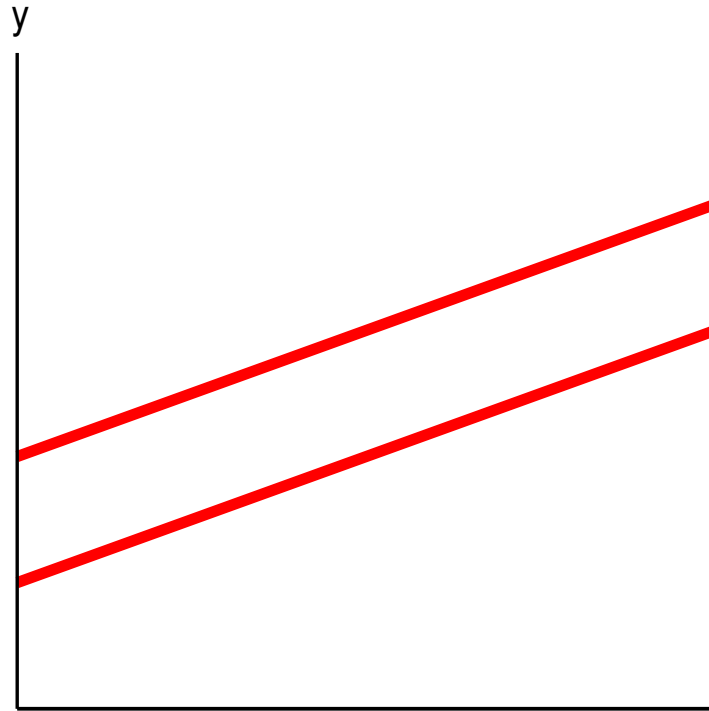
Example 5

Determine a linear model whose expected values fit the following graph:



Example 5

Determine a linear model whose expected values fit the following graph:

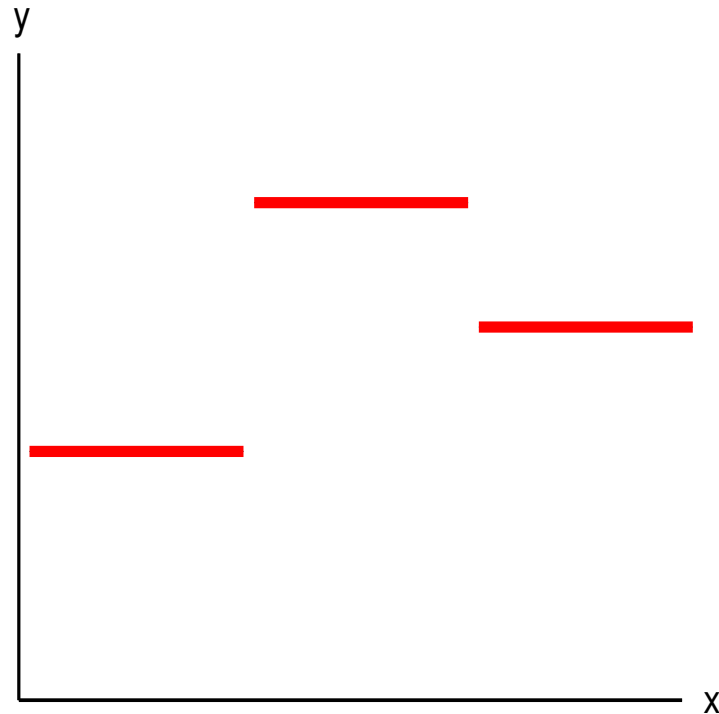


Solution:

$$y_i = \mu + \alpha_1 X_{i1} + \alpha_2 X_{i2} + \beta_1 X_i + e_i$$

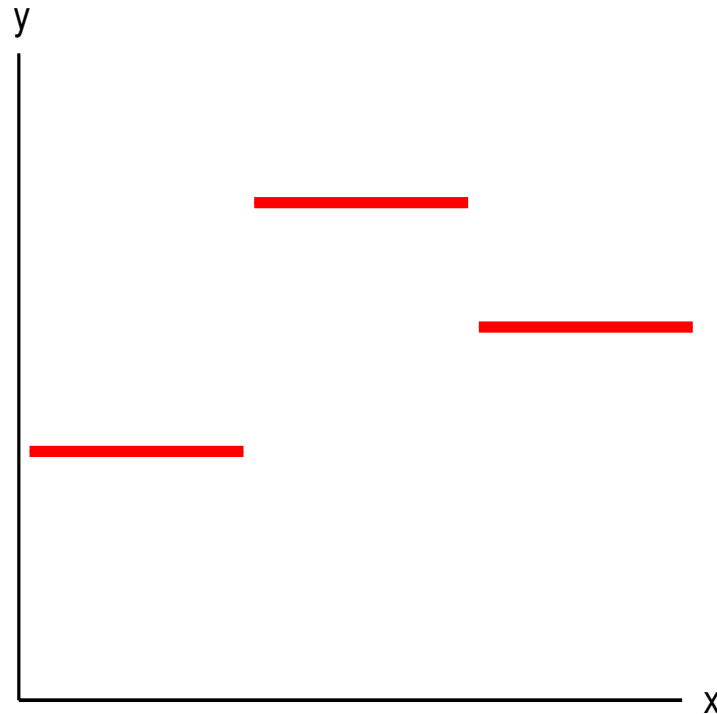
Example 6

Determine a linear model whose expected values fit the following graph:



Example 6

Determine a linear model whose expected values fit the following graph:

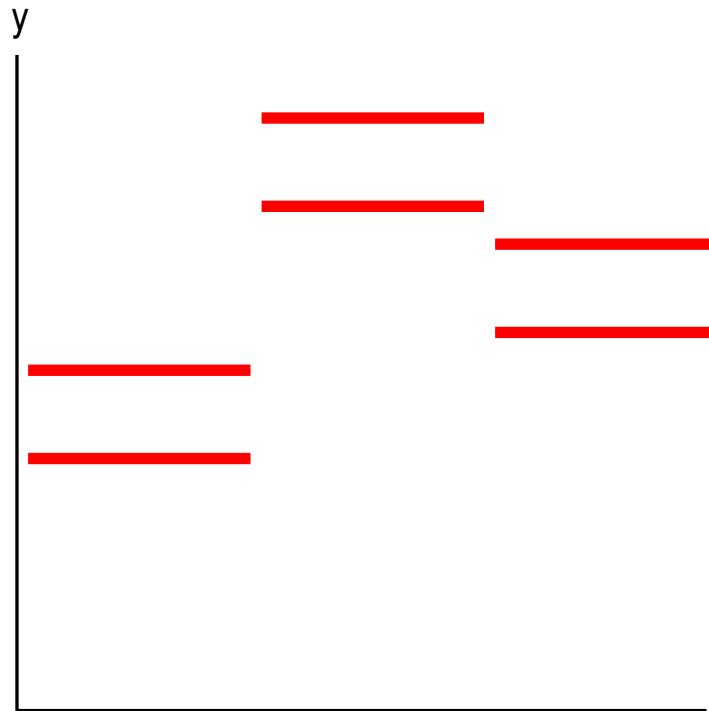


Solution:

$$y_i = \mu + \alpha_1 X_{i1} + \alpha_2 X_{i2} + \alpha_3 X_{i3} + e_i$$

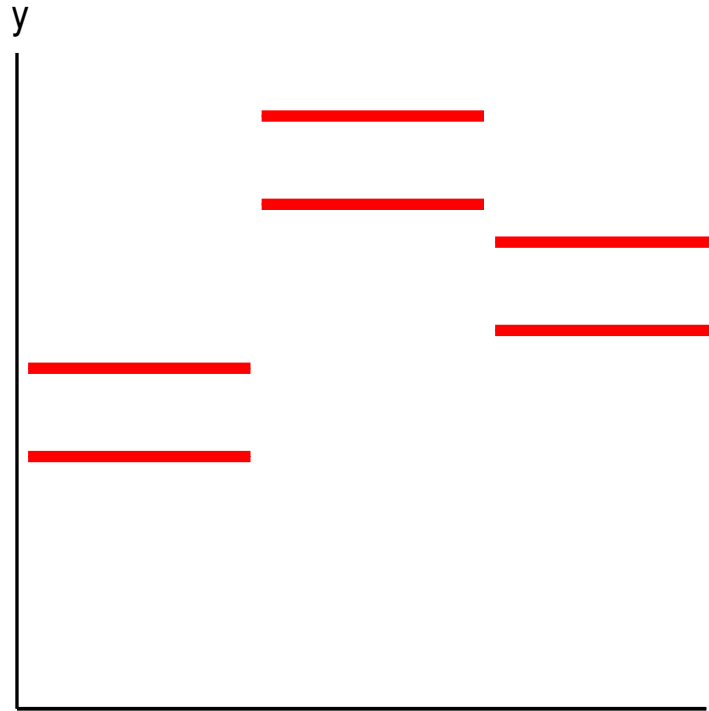
Example 7

Determine a linear model whose expected values fit the following graph:



Example 7

Determine a linear model whose expected values fit the following graph:

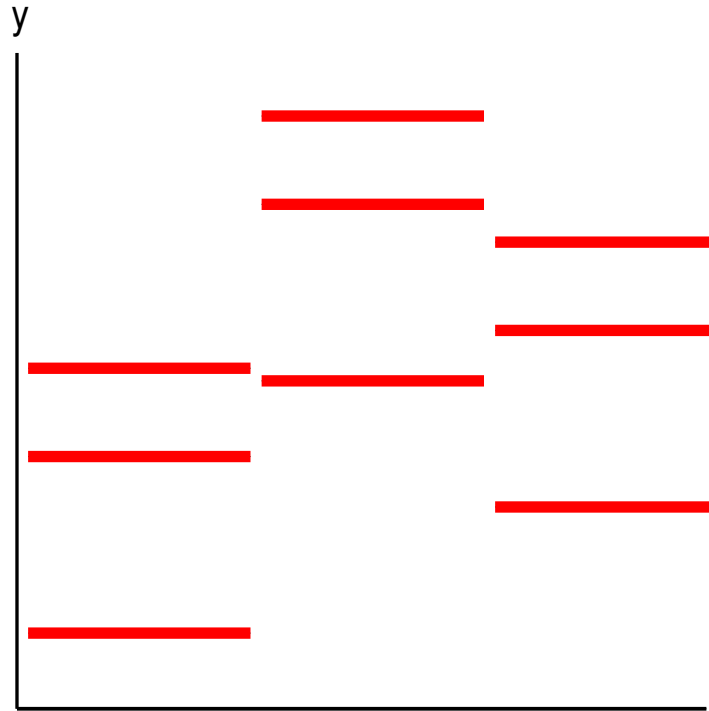


Solution:

$$y_i = \mu + \alpha_1 X_{i1} + \alpha_2 X_{i2} + \alpha_3 X_{i3} + \beta_1 X_{i4} + \beta_2 X_{i5} + e_i$$

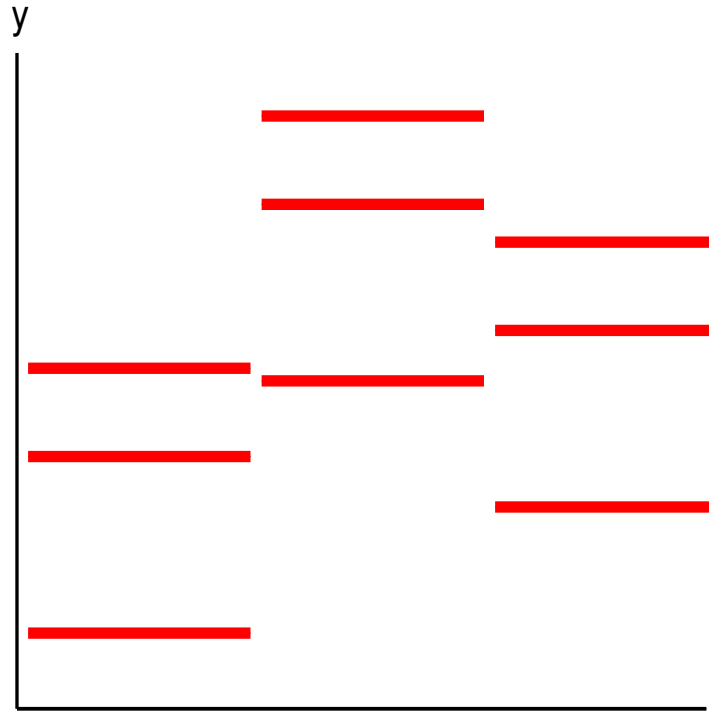
Example 8

Determine a linear model whose expected values fit the following graph:



Example 8

Determine a linear model whose expected values fit the following graph:

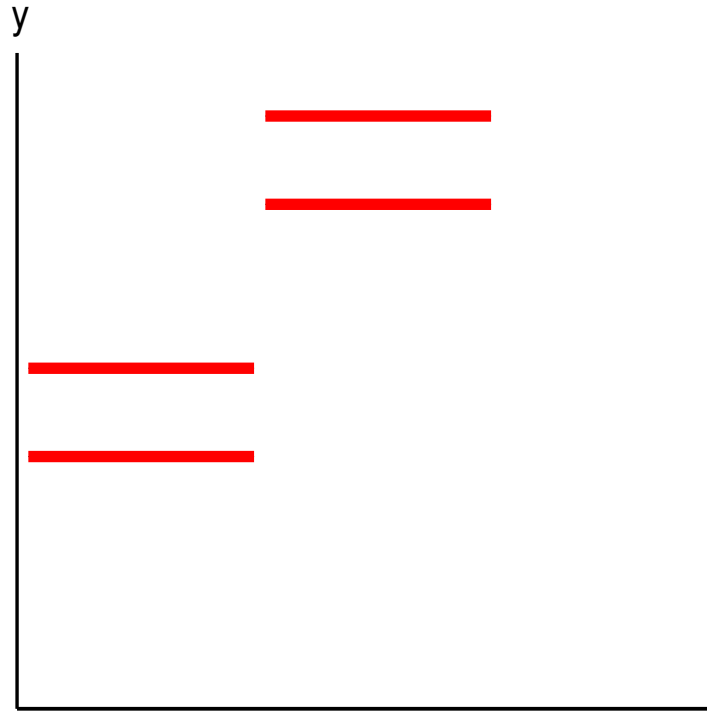


Solution:

$$y_i = \mu + \alpha_1 X_{i1} + \alpha_2 X_{i2} + \alpha_3 X_{i3} + \beta_1 X_{i4} + \beta_2 X_{i5} + \beta_3 X_{i6} + e_i$$

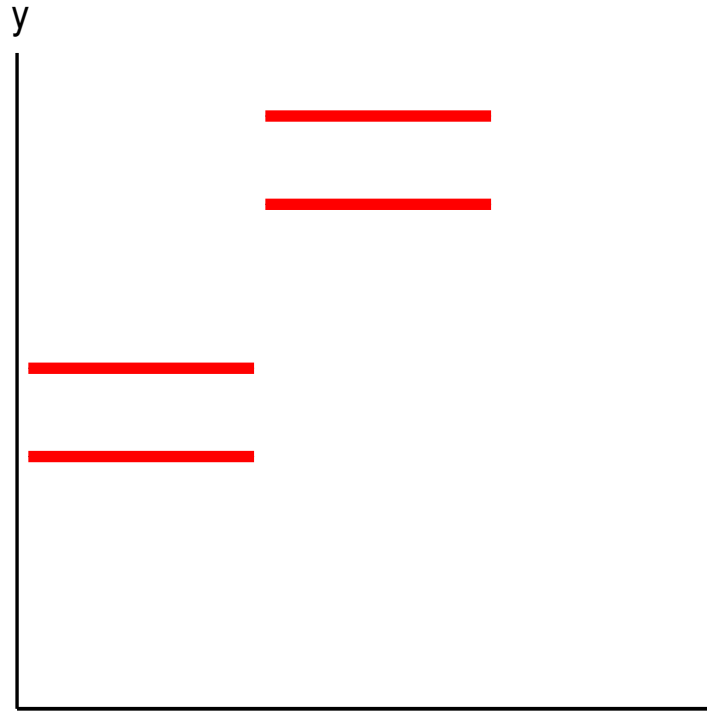
Example 9

Determine a linear model whose expected values fit the following graph:



Example 9

Determine a linear model whose expected values fit the following graph:

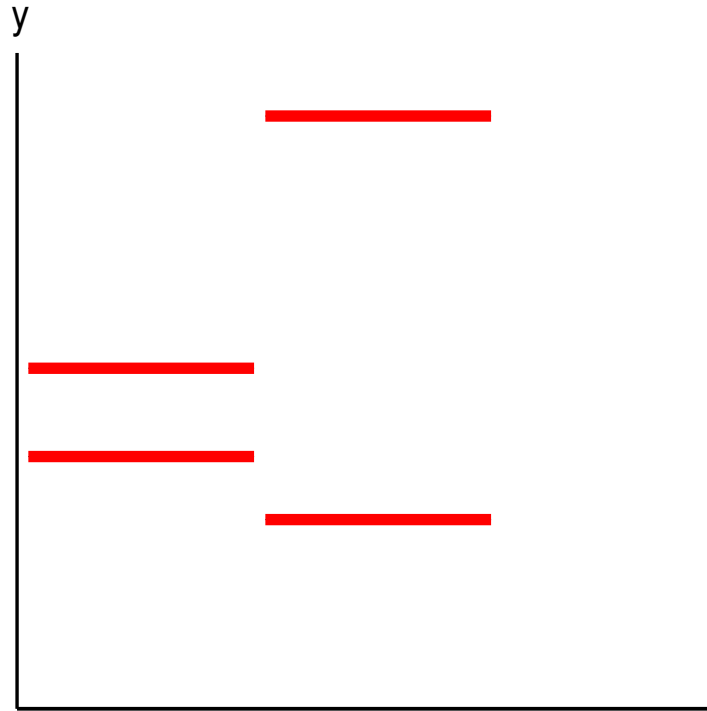


Solution:

$$y_i = \mu + \alpha_1 X_{i1} + \alpha_2 X_{i2} + \beta_1 X_{i3} + \beta_2 X_{i4} + e_i$$

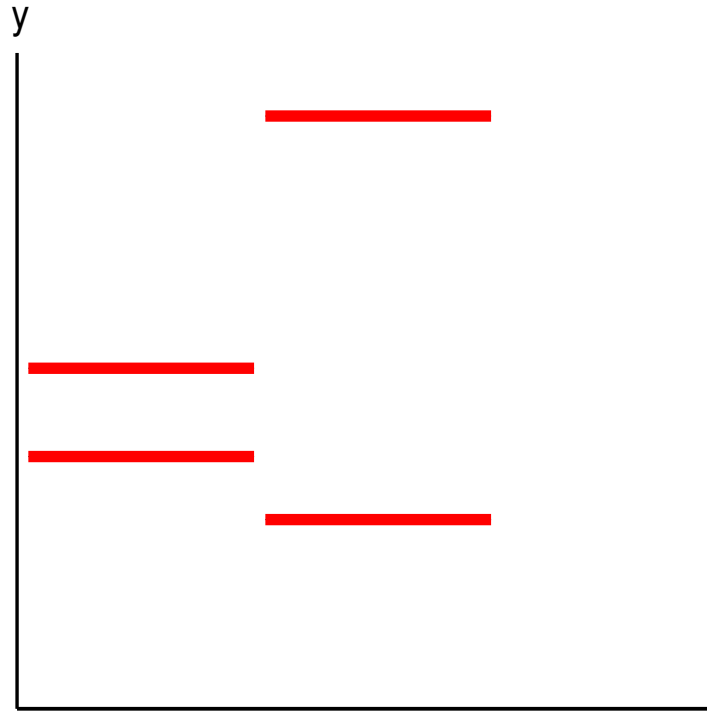
Example 10

Determine a linear model whose expected values fit the following graph:



Example 10

Determine a linear model whose expected values fit the following graph:

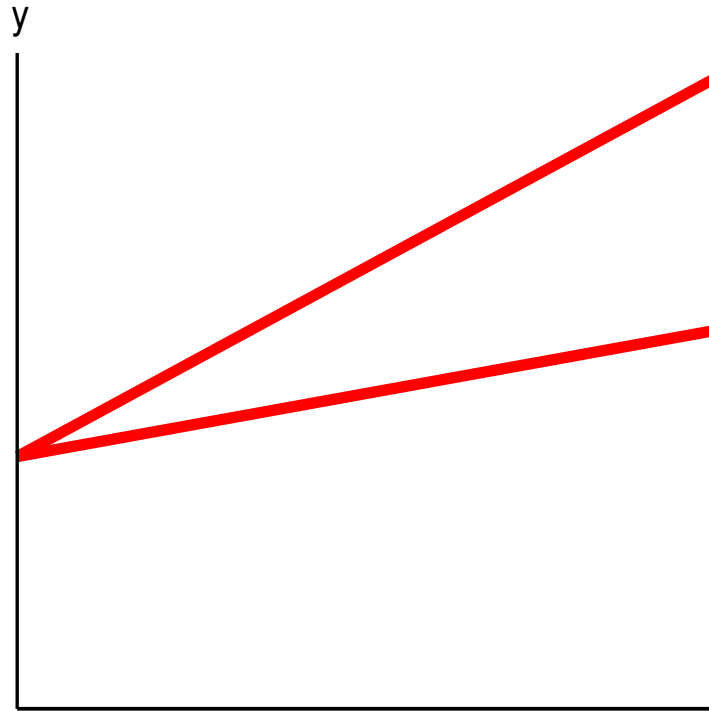


Solution:

$$y_i = \mu + \alpha_1 X_{i1} + \alpha_2 X_{i2} + \beta_1 X_{i3} + \beta_2 X_{i4} \\ + \gamma_{11} X_{i1} X_{i3} + \gamma_{21} X_{i1} X_{i4} + \gamma_{12} X_{i2} X_{i3} + \gamma_{22} X_{i2} X_{i4} + e_i$$

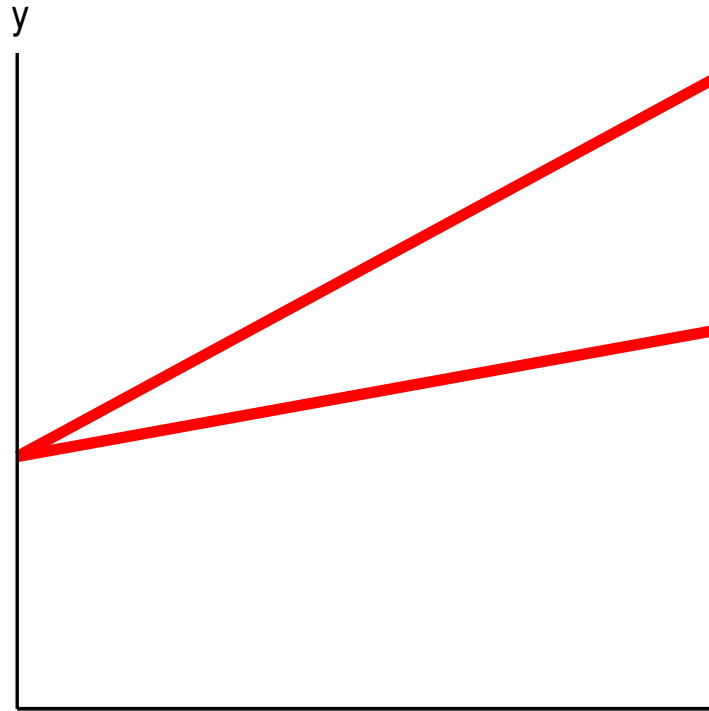
Example 11

Determine a linear model whose expected values fit the following graph:



Example 11

Determine a linear model whose expected values fit the following graph:

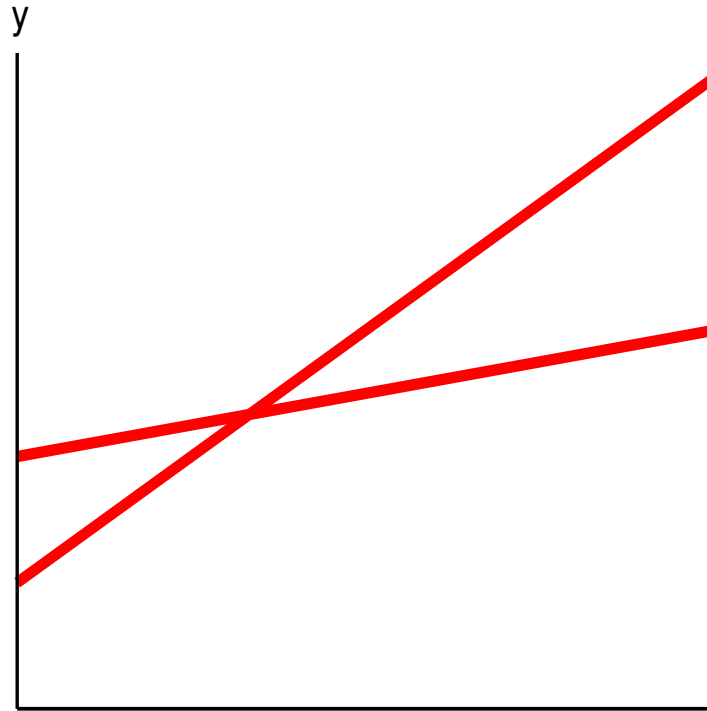


Solution:

$$y_i = \beta_0 + \beta_{i1}X_{i1}X_i + \beta_{i2}X_{i2}X_i + e_i$$

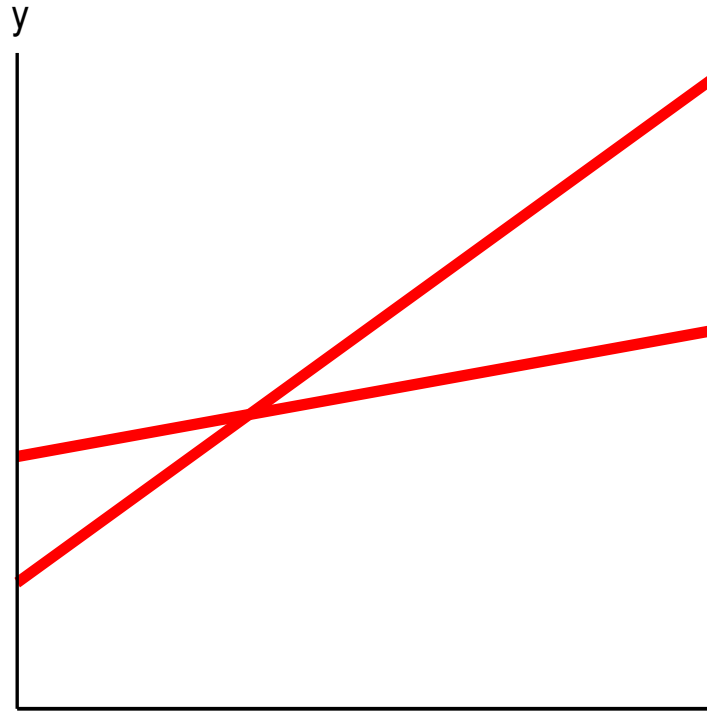
Example 12

Determine a linear model whose expected values fit the following graph:



Example 12

Determine a linear model whose expected values fit the following graph:



Solution:

$$y_i = \beta_{01}X_{i1} + \beta_{02}X_{i2} + \beta_{11}X_{i1}X_i + \beta_{12}X_{i2}X_i + e_i$$