Example 6-1: Page 198 (216)

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **T (℃)** | 0 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |
| **p (atm)** | 0.94 | 0.96 | 1 | 1.05 | 1.07 | 1.09 | 1.14 | 1.17 | 1.21 | 1.24 | 1.28 |

p = a1T + a0

residual: ri = yi - f(xi)

Sx = sum (i = 1 : 4) ⇒ xi = 0 + 30 + 70 + 100 = 200

Sxx = sum (i = 1 : 4) ⇒ x2i = 0 + 302 + 702 + 1002 = 15800

Sy = sum (i = 1 : 4) ⇒ yi = 0.94 + 1.05 + 1.17 + 1.28 = 4.44

Sxy = sum (i = 1 : 4) ⇒ xiyi = (0)(0.94) + (30)(1.05) + (70)(1.17) + (100)(1.28) = 241.4

a1 = (n(Sxy) - SxSy) / (n(Sxx) - (Sx)2) = ((4)(241.4) - (200)(4.44)) / (4(15800) - (200)2) = 0.0033448

a0 = (SxxSy - SxySx) / (n(Sxx) - (Sx)2) = ((15800)(4.44) - (241.4)(200)) / (4(15800) - (200)2) = 0.94276

p = (0.0033448)T + 0.94276