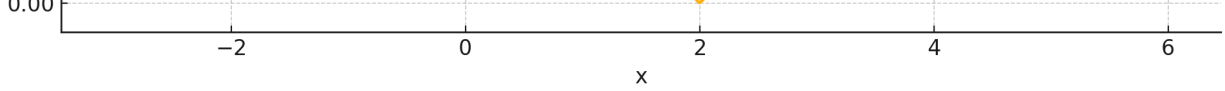
Question 1: Population of Mexico

Year	Population (millions)
1960	37.0
1970	48.2
1980	68.3
1990	81.4
2000	100.4
2010	112.3
2020	128.9

Model:
Pop(y) = 36.9 + 1.515 (y - 1960)
Projection for 2050:
≈ 36.9 + 1.515*90 ≈ 173.3 million

Residual analysis:
Mean residual ≈ 0; Std dev ≈ 4-5; slight curvature suggests quadratic or logistic model might improve the fit.



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Assumptions:
- e_i are IID with E[e_i]=0, Var(e_i)=σ^2
- Uncorrelated with |x_i - 2|

Least-squares estimate:
b■ = (1.5·4 + 0.5·2 + 1·2)/(4²+2²+2²) = 9/24 = 0.375

Graph of data and fitted curve: