

4 Further Probability & Statistics – Part 2 — Answers

Answers

4.1 $\chi^2 = \sum \frac{(O - E)^2}{E}.$

4.2 $\chi^2 = \frac{(10-20)^2 + (20-20)^2 + (30-20)^2}{20} = \frac{100 + 0 + 100}{20} = 10.$

4.3 The model fits the data **badly** (the observed counts are far from the expected).

4.4 $G'(t) = 0.4 + 0.4t$, so $E(X) = G'(1) = 0.4 + 0.4 = 0.8.$

4.5 The whole probability distribution of X .

4.6 $G'(t) = \frac{1}{2} + \frac{1}{2}t$, so $E(X) = G'(1) = \frac{1}{2} + \frac{1}{2} = 1.$