Solutions

2.1

- Incidence: new cases ÷ at-risk ÷ time. Prevalence: existing cases ÷ population at an instant ✓.

2.2

- 25/5,000 = 0.5 % per year ✓.

2.3

- P ≈ I × D (duration); steady state assumed ✓.

3.1

- Prevalence 60/4,000 = 1.5 % ✓.
- Incidence 80/4,000 = 2 %/yr ✓.
- Case fatality 12/80 = 15 % ✓.
- Duration ≈ P/I = 1.5 %/2 %/yr = 0.75 yr – assuming steady state (incidence and duration stable) ✓.

3.2

- Crude rate = Σ(age-specific rate × age share): a younger population drags the crude rate down at equal risk ✓.
- Standardise: apply both districts' age-specific rates to ONE standard population; the totals then share the age mix ✓.
- After standardisation, non-age differences remain: smoking, deprivation, care access ✓.