

- 10** **(a)** Write down and simplify the first four terms in the expansion of $(x + y)^7$.
Give your answer in ascending powers of x . **[2]**
- (b)** Given that the terms in x^2y^5 and x^3y^4 in this expansion are equal, find the value of $\frac{x}{y}$. **[2]**
- (c)** A hospital consultant has seven appointments every day.
The number of these appointments which start late on a randomly chosen day is denoted by L .
The variable L is modelled by the distribution $B\left(7, \frac{3}{8}\right)$.
- Show that, in this model, the hospital consultant is equally likely to have two appointments start late or three appointments start late. **[3]**