

- 11** Alex models the number of goals that a local team will score in any match as follows.

Number of goals	0	1	2	3	4	More than 4
Probability	$\frac{3}{25}$	$\frac{1}{5}$	$\frac{8}{25}$	$\frac{7}{25}$	$\frac{2}{25}$	0

The number of goals scored in any match is independent of the number of goals scored in any other match.

- (a)** Alex chooses 3 matches at random. Use the model to determine the probability of each of the following.
- (i)** The team will score a total of exactly 1 goal in the 3 matches. **[2]**
- (ii)** The numbers of goals scored in the first 2 of the 3 matches will be equal, but the number of goals scored in the 3rd match will be different. **[3]**

During the first 10 matches this season, the team scores a total of 31 goals.

- (b)** Without carrying out a formal test, explain briefly whether this casts doubt on the validity of Alex's model. **[1]**