

[Maximum mark: 8]

At a school, 70% of the students play a sport and 20% of the students are involved in theatre. 18% of the students do neither activity.

A student is selected at random.

- (a) Find the probability that the student plays a sport and is involved in theatre. [2]
- (b) Find the probability that the student is involved in theatre, but does not play a sport. [2]

At the school 48% of the students are girls, and 25% of the girls are involved in theatre.

A student is selected at random. Let  $G$  be the event "the student is a girl" and let  $T$  be the event "the student is involved in theatre".

- (c) Find  $P(G \cap T)$ . [2]
- (d) Determine if the events  $G$  and  $T$  are independent. Justify your answer. [2]