

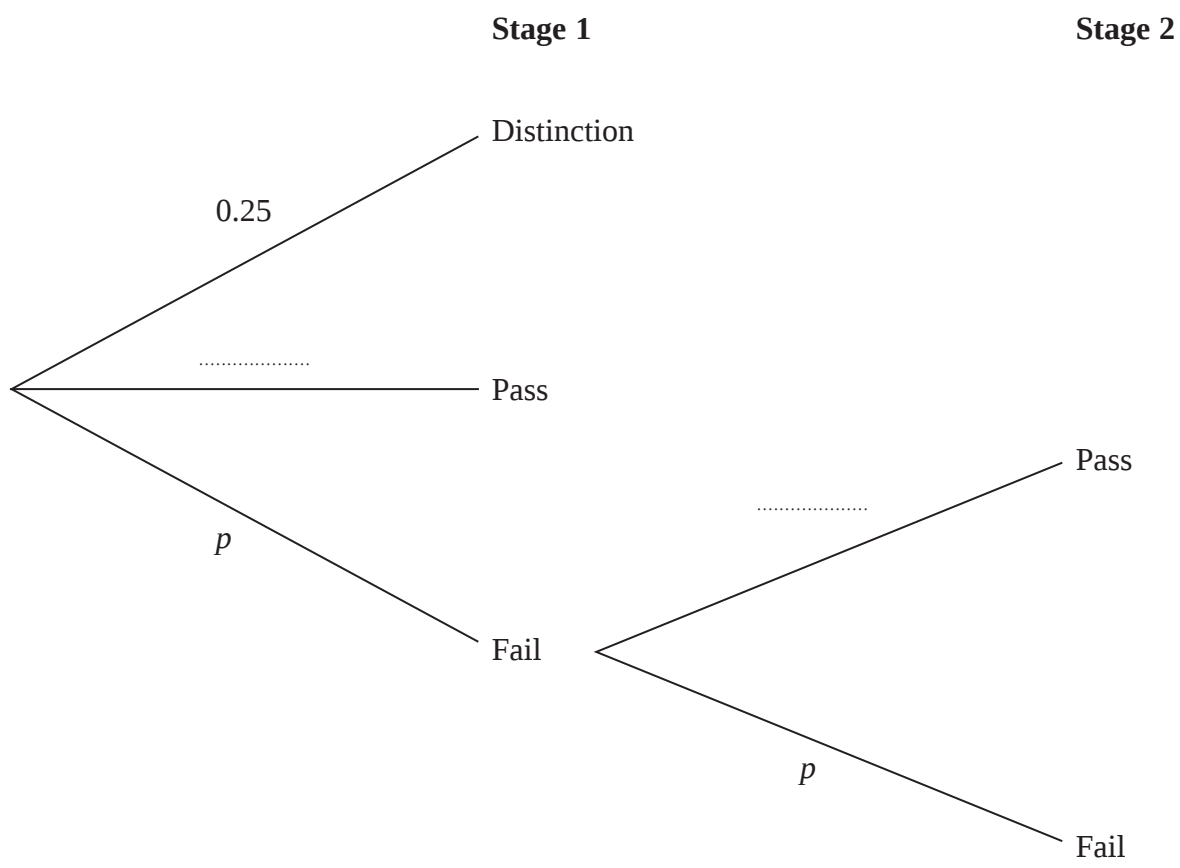
2. A company uses an online training course for its employees. The course has up to two stages.

In Stage 1 an employee can achieve a Distinction, a Pass or a Fail. If the outcome of Stage 1 is a Fail, the employee must move on to Stage 2, where the employee can only achieve a Pass or a Fail.

The company uses a model for the course where, for all departments in the company

- 25% of employees achieve a Distinction
- the probability, p , of a Fail in Stage 1 is equal to the probability of a Fail in Stage 2

The company uses the tree diagram below to model the outcomes of the course.



- (a) Complete the tree diagram above, giving the probabilities in terms of p
(2)
- The probability that the outcome of the course is a Fail is 0.2025
- (b) Find the value of p
(2)
- (c) Find the probability that the outcome of the course is a Pass.
 (2)
- A randomly chosen employee from Accounting and a randomly chosen employee from Marketing take the course.
- (d) Use the model to find the probability that the employee from Marketing achieves a better outcome than the employee from Accounting.
 (3)