

- 9** A water tank holds 2000 litres when full. A small hole in the base is gradually getting bigger so that each day a greater amount of water is lost.
- (i) On the first day after filling, 10 litres of water are lost and this increases by 2 litres each day.
- (a) How many litres will be lost on the 30th day after filling? [2]
- (b) The tank becomes empty during the  $n$ th day after filling. Find the value of  $n$ . [3]
- (ii) Assume instead that 10 litres of water are lost on the first day and that the amount of water lost increases by 10% on each succeeding day. Find what percentage of the original 2000 litres is left in the tank at the end of the 30th day after filling. [4]

**[Questions 10 and 11 are printed on the next page.]**