

3. A tank, which contained water, started to leak from a hole in its base.

The volume of water in the tank 24 minutes after the leak started was 4 m^3 .

The volume of water in the tank 60 minutes after the leak started was 2.8 m^3 .

The volume of water, $V \text{ m}^3$, in the tank t minutes after the leak started, can be described by a linear model between V and t .

(a) Find an equation linking V with t .

(4)

Use this model to find

(b) (i) the initial volume of water in the tank,

(ii) the time taken for the tank to empty.

(3)

(c) Suggest a reason why this linear model may not be suitable.

(1)

(Total for Question 3 is 8 marks)