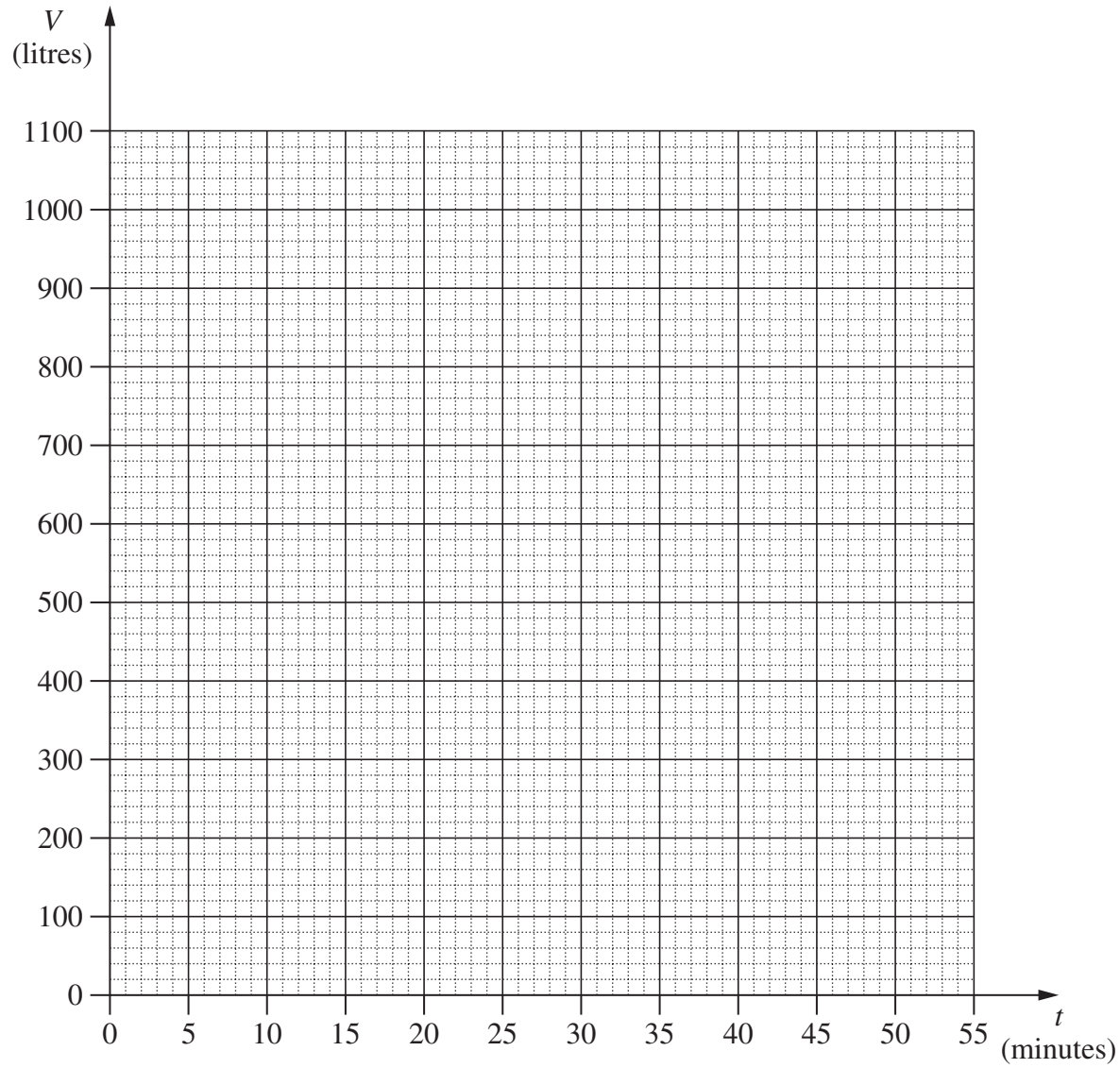
Question 24 (4 marks)

There are two tanks on a property, Tank *A* and Tank *B*. Initially, Tank *A* holds 1000 litres of water and Tank *B* is empty.

(a) Tank *A* begins to lose water at a constant rate of 20 litres per minute. The volume of water in Tank *A* is modelled by $V = 1000 - 20t$ where V is the volume in litres and t is the time in minutes from when the tank begins to lose water. **1**

On the grid below, draw the graph of this model and label it as Tank *A*.



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(b) Tank *B* remains empty until $t = 15$ when water is added to it at a constant rate of 30 litres per minute. **2**

By drawing a line on the grid on the previous page, or otherwise, find the value of t when the two tanks contain the same volume of water.

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(c) Using the graphs drawn, or otherwise, find the value of t (where $t > 0$) when the total volume of water in the two tanks is 1000 litres. **1**

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End of Question 24