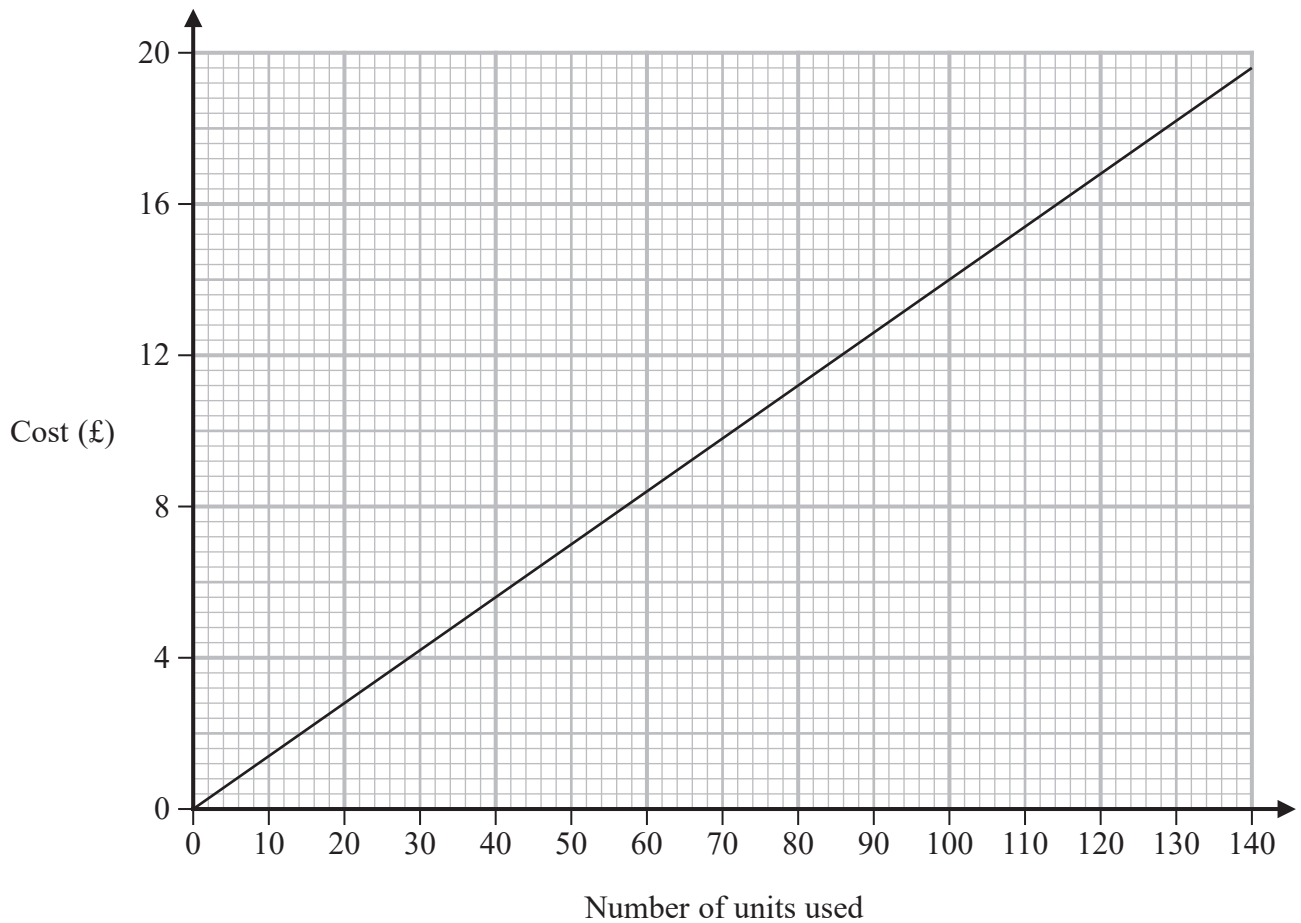**1** An electricity company charges the same fixed amount for each unit of electricity used.

David uses this graph to work out the total cost of the electricity he has used.

Cost (£) vs Number of units used

(a) Work out the gradient of the straight line.

....
(2)

(b) What does the gradient of this line represent?

....

....

....
(1)

(Total for Question 1 is 3 marks)

2 The graph gives information about the volume, *v* litres, of petrol in the tank of Jim's car after it has travelled a distance of *d* kilometres.
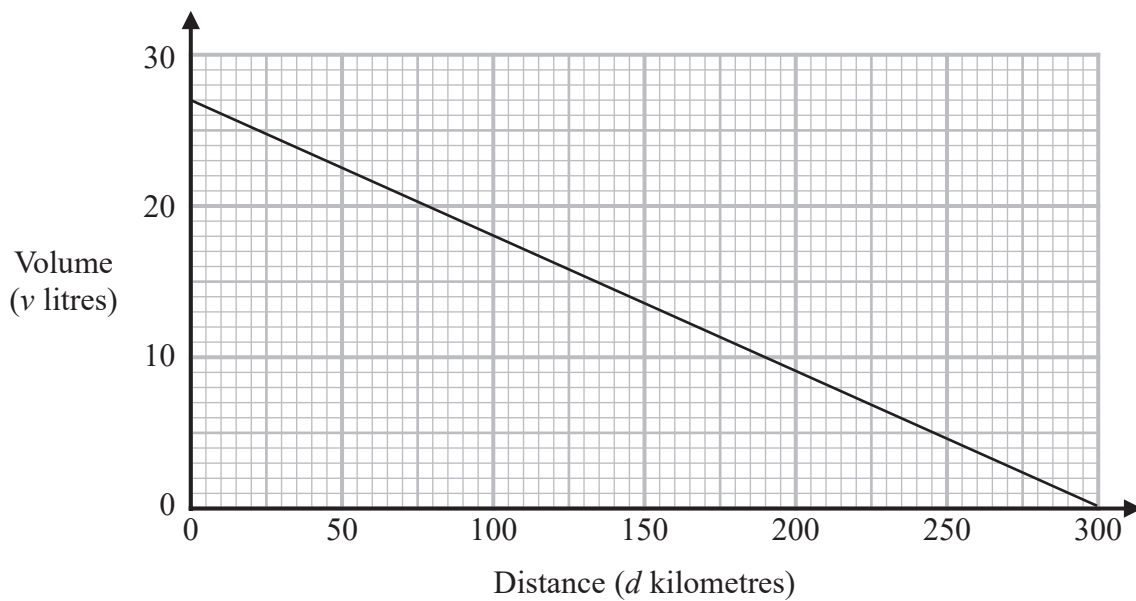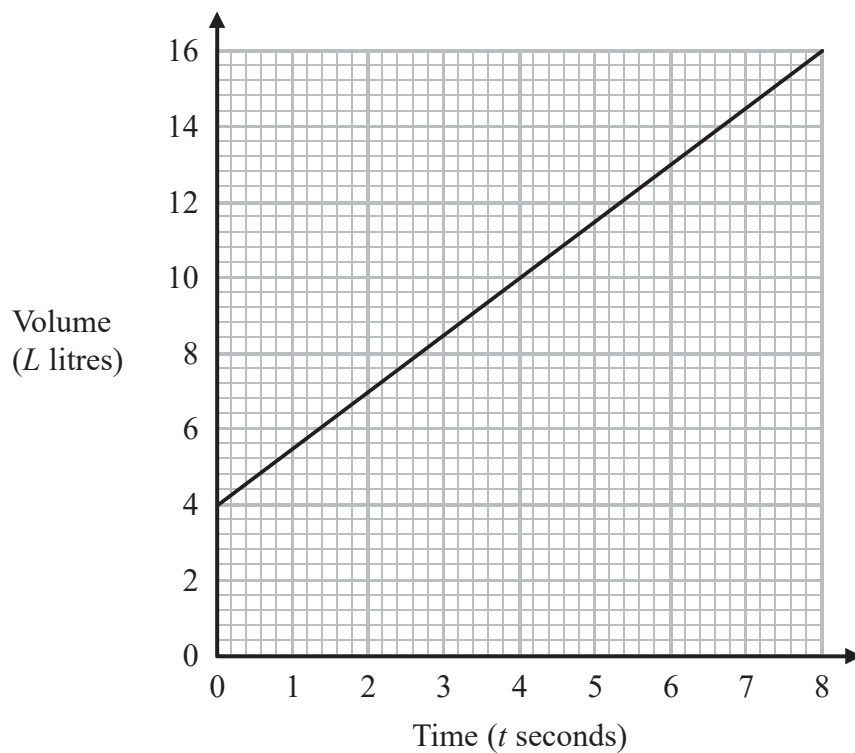

(a) Find the gradient of the graph.

....

(2)

(b) Interpret what the gradient of the graph represents.

....

....

....

(1)

(Total for Question 2 is 3 marks)

3 The graph shows the volume of liquid (L litres) in a container at time t seconds.

(a) Find the gradient of the graph.

....

(2)

(b) Explain what this gradient represents.

....

....

(1)

The graph intersects the volume axis at $L = 4$

(c) Explain what this intercept represents.

....

....

(1)

(Total for Question 3 is 4 marks)

4 Here is a speed-time graph.

Time (t seconds)
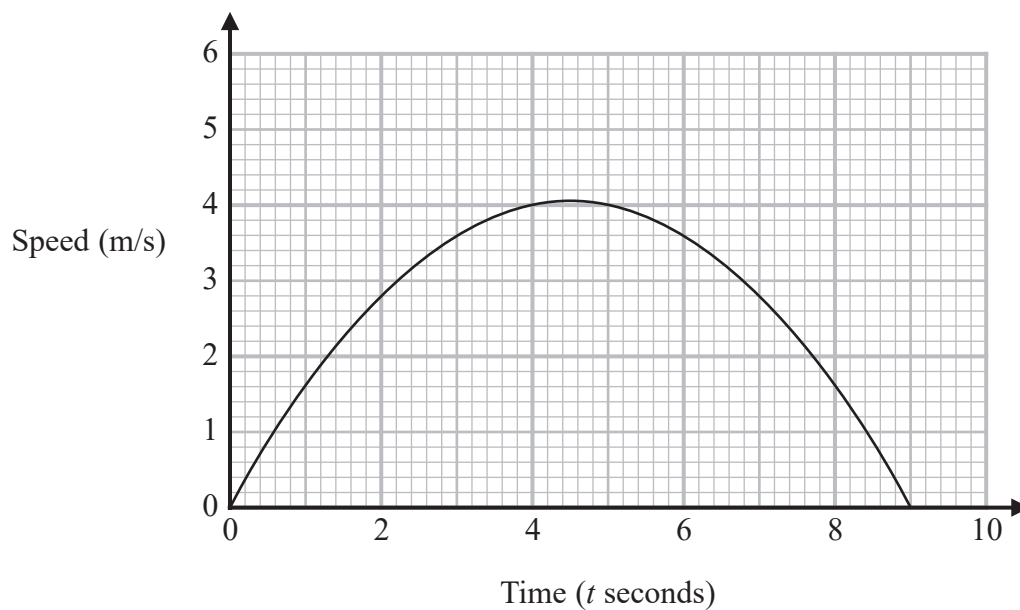
(a) Work out an estimate of the gradient of the graph at $t = 2$

....

(3)

(b) What does the area under the graph represent?

....

....

(1)

(Total for Question 4 is 4 marks)

5 The graph below gives the volume, in litres, of water in a container t seconds after the water starts to fill the container.
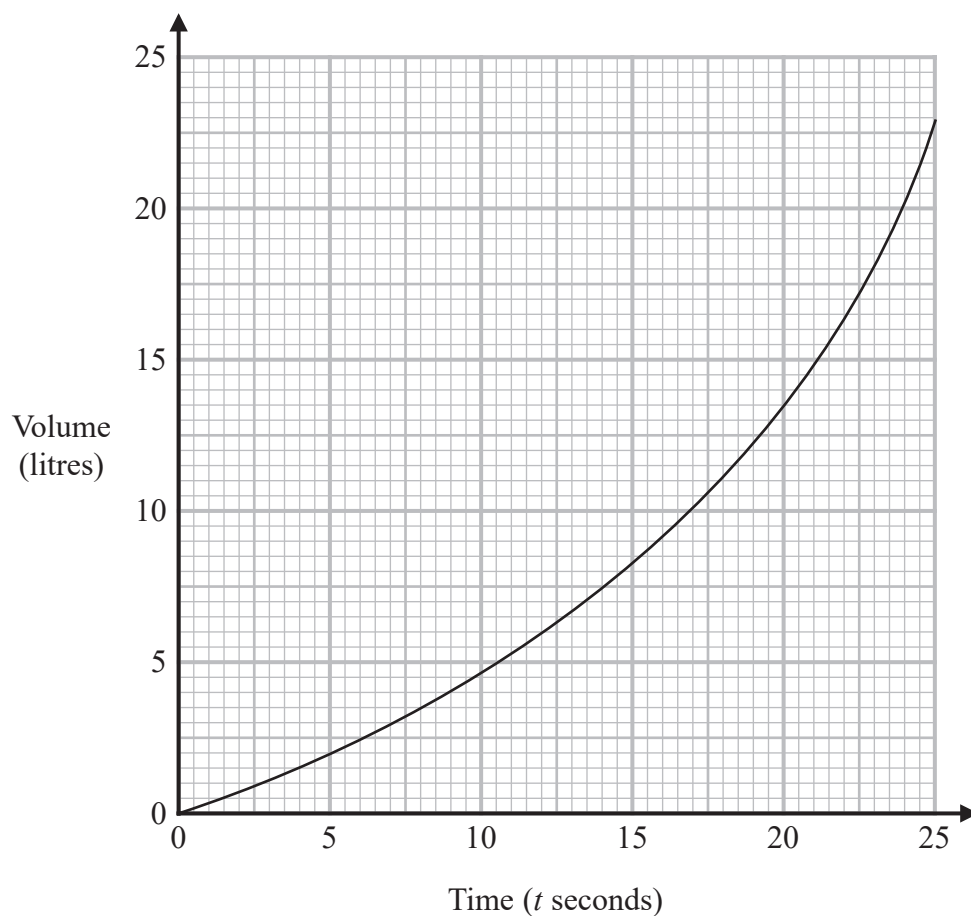
(a) Calculate an estimate for the gradient of the graph when $t = 17.5$
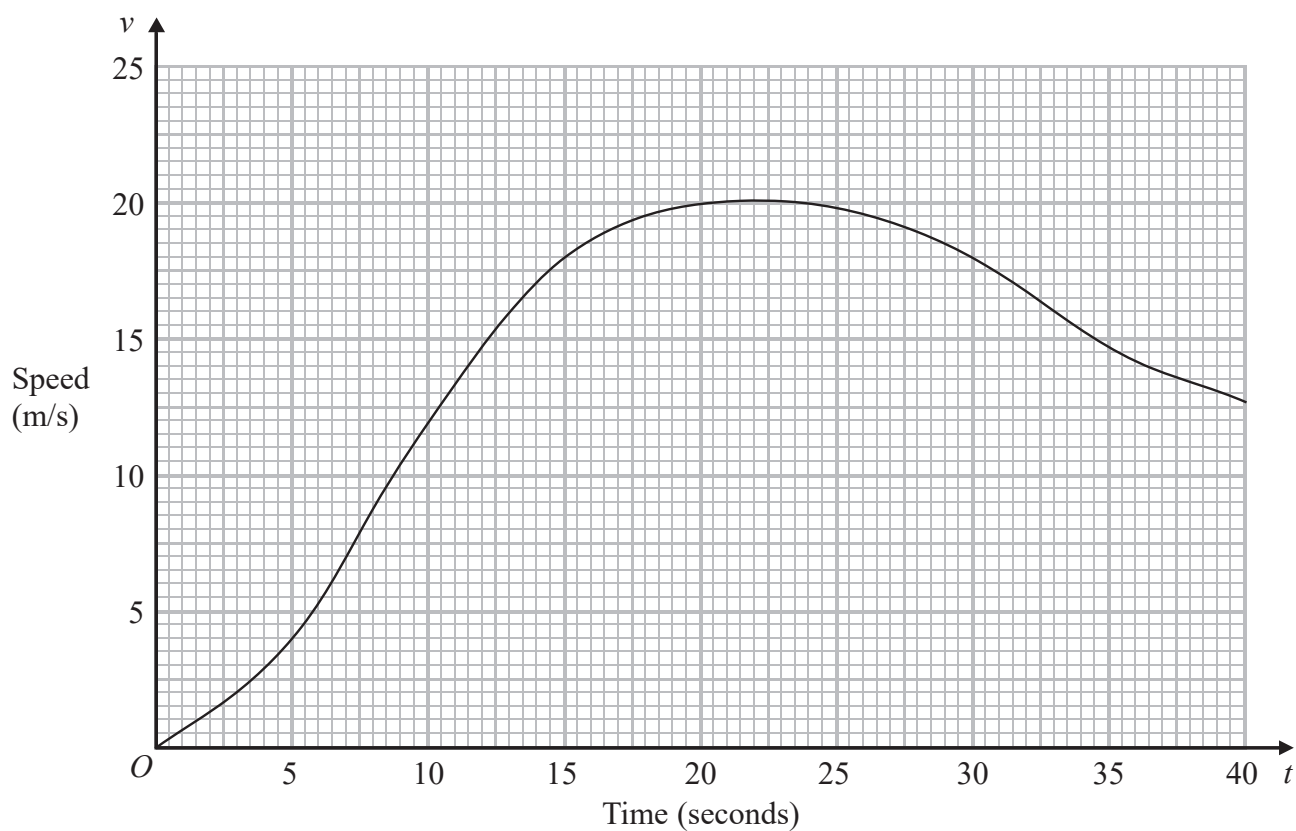   You must show how you get your answer.

....

(3)

(b) Describe fully what the gradient in part (a) represents.

....

....

....

(1)

(Total for Question 5 is 4 marks)

6 A car moves from rest.

The graph gives information about the speed, v metres per second, of the car t seconds after it starts to move.

(a) (i) Calculate an estimate of the gradient of the graph at $t = 15$

....

(3)

(ii) Describe what your answer to part (i) represents.

....
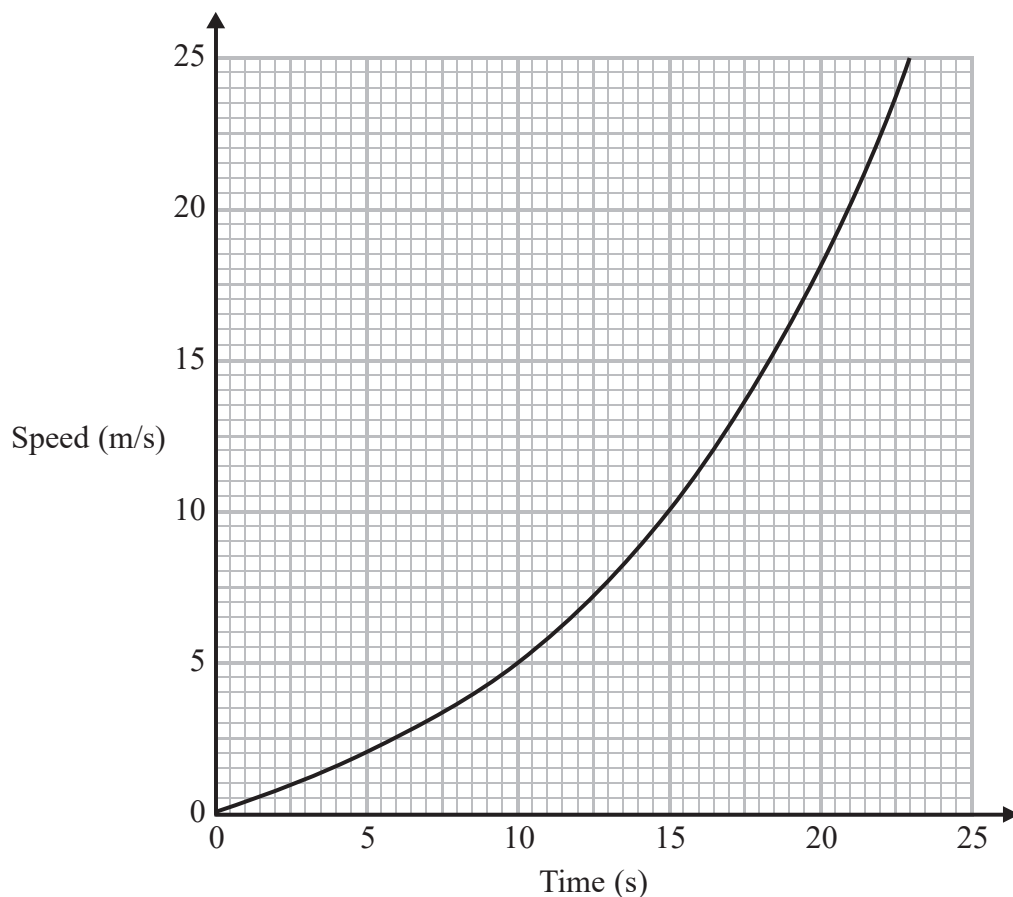
(1)

(b) Work out an estimate for the distance the car travels in the first 20 seconds of its journey.
Use 4 strips of equal width.

....m

(3)

(Total for Question 6 is 7 marks)

7 Here is a speed-time graph for a train.

Speed (m/s)

Time (s)

(a) Work out an estimate for the distance the train travelled in the first 20 seconds.
Use 4 strips of equal width.

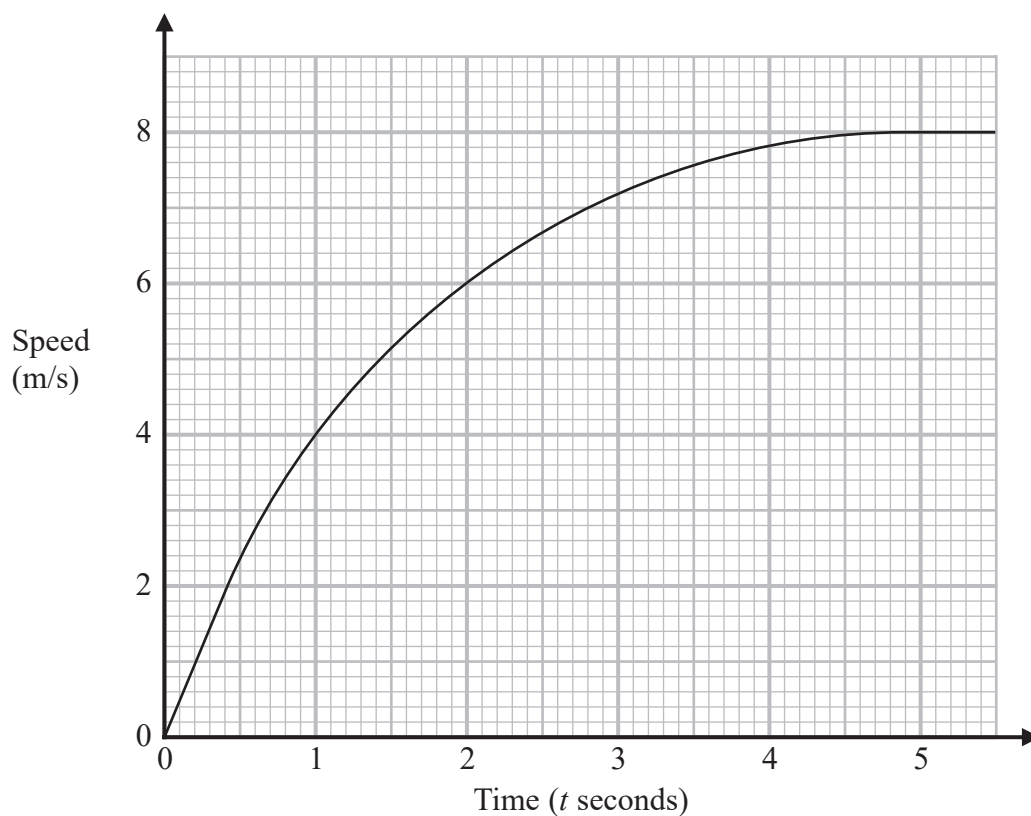.. m

(3)

(b) Is your answer to (a) an underestimate or an overestimate of the actual distance the train travelled?
Give a reason for your answer.

....

....

(1)

(Total for Question 7 is 4 marks)

8 Here is a speed-time graph showing the speed, in metres per second, of an object t seconds after it started to move from rest.

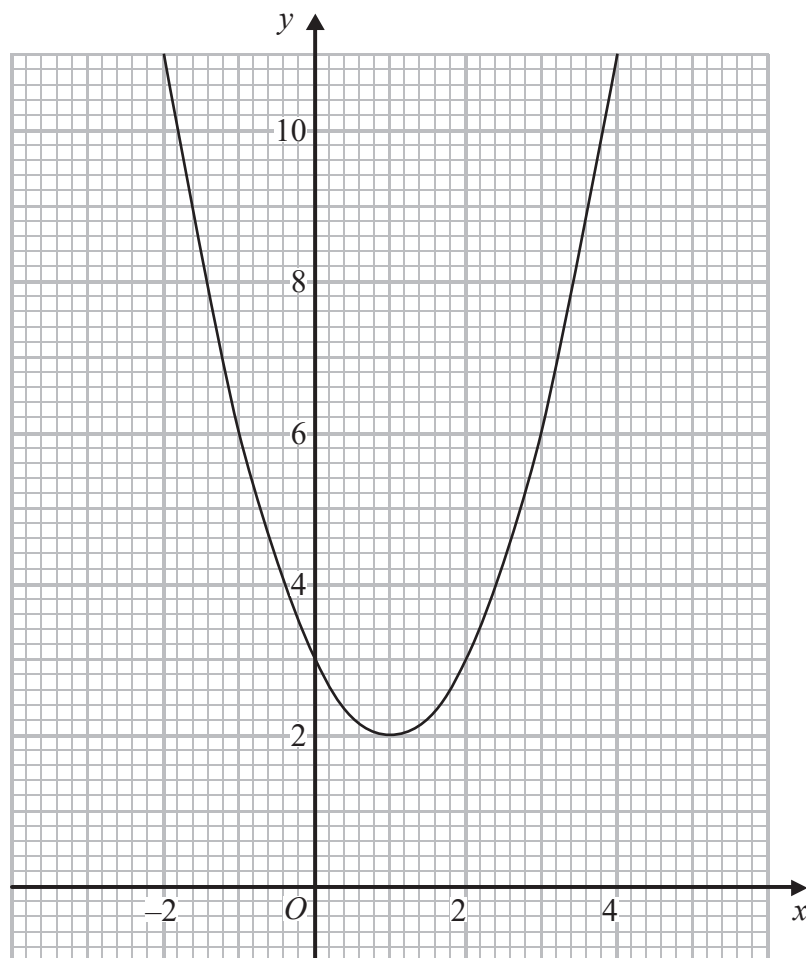(a) Using 3 trapeziums of equal width, work out an estimate for the area under the graph between $t = 1$ and $t = 4$

....

(3)

(b) What does this area represent?

....

(1)

(Total for Question 8 is 4 marks)

9 The diagram shows part of the graph of $y = x^2 - 2x + 3$

(a) By drawing a suitable straight line, use your graph to find estimates for the solutions of $x^2 - 3x - 1 = 0$

....

(2)

P is the point on the graph of $y = x^2 - 2x + 3$ where $x = 2$

(b) Calculate an estimate for the gradient of the graph at the point P.

....

(3)

(Total for Question 9 is 5 marks)