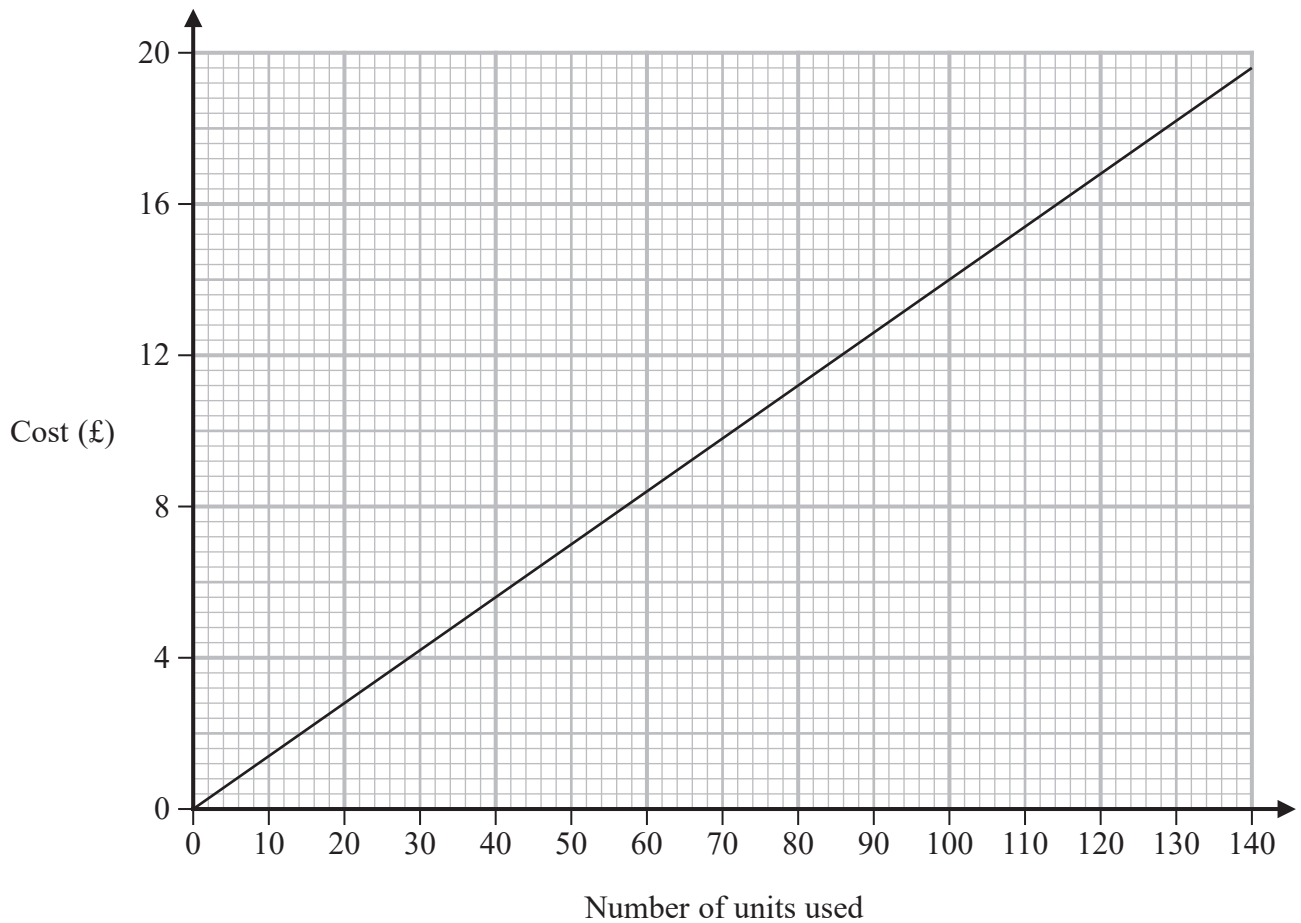


- 1 An electricity company charges the same fixed amount for each unit of electricity used.

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



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

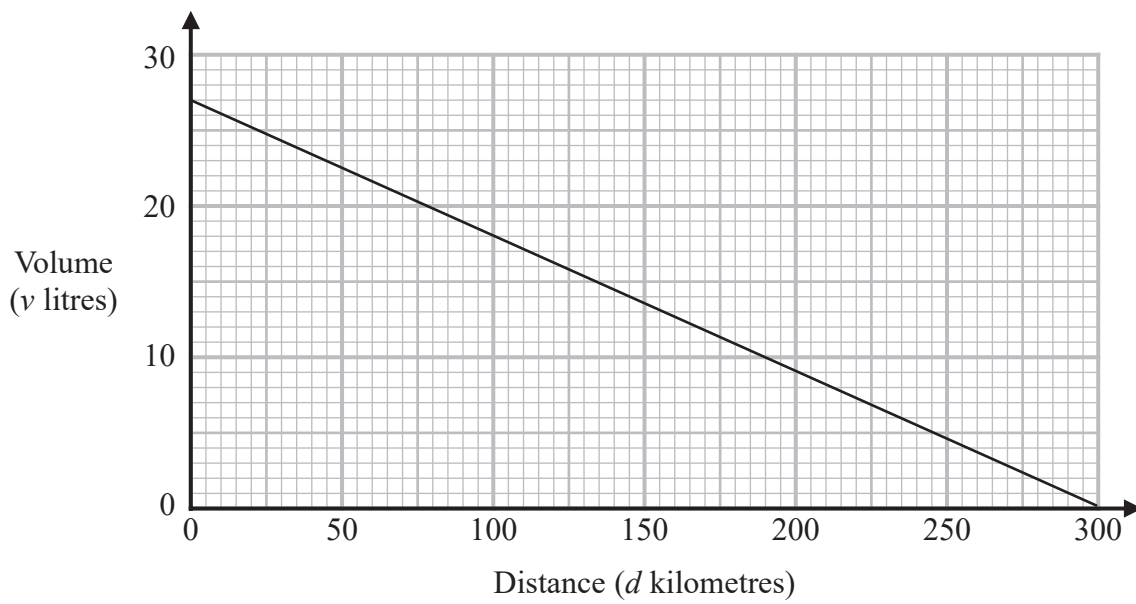
.....
(2)

- (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.

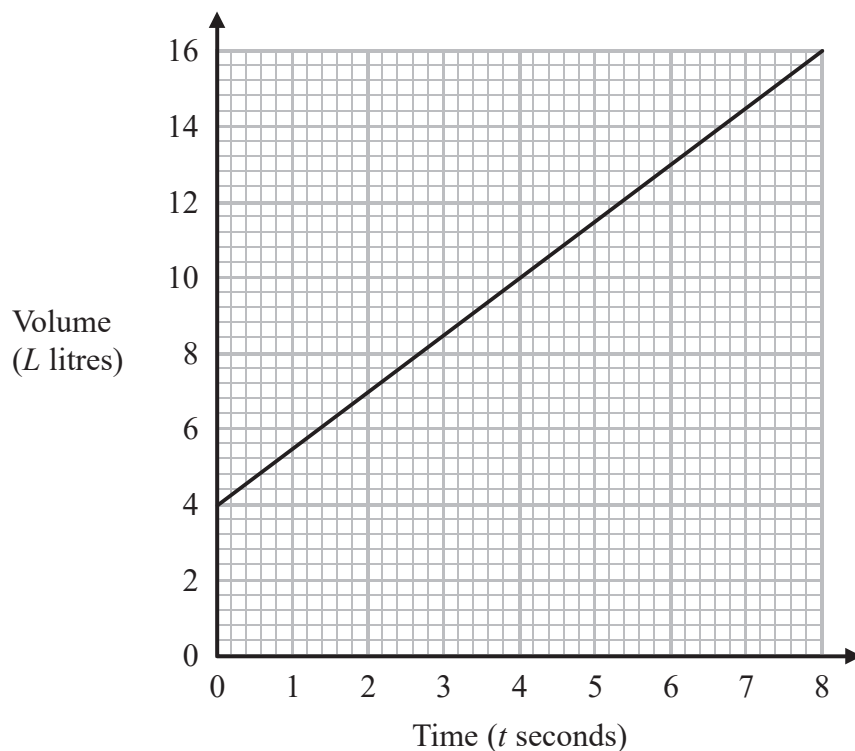
.....
(2)

- (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)

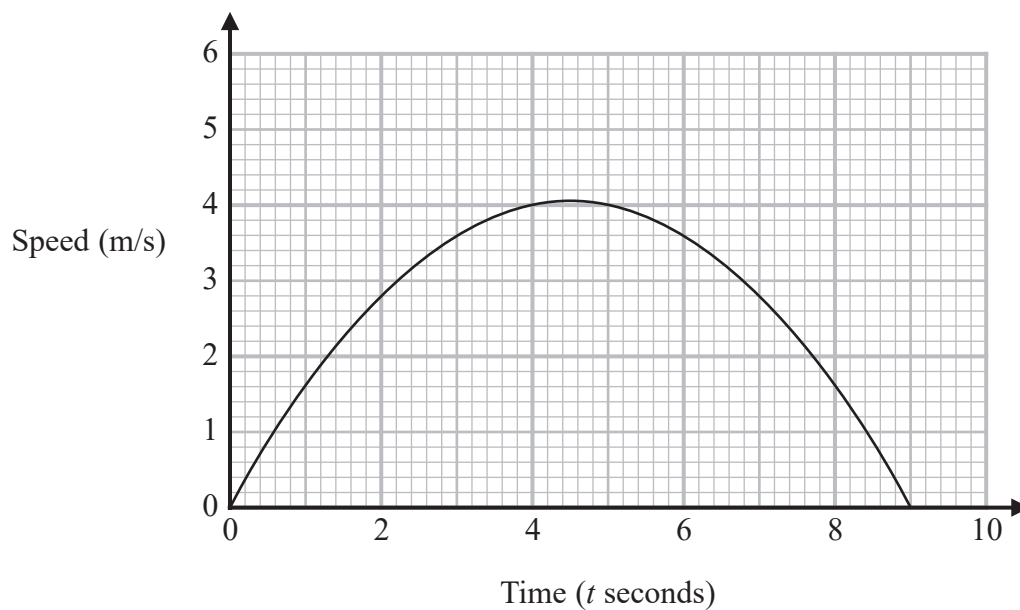
The graph intersects the volume axis at $L = 4$

- (c) Explain what this intercept represents.

.....
.....
(1)

(Total for Question 3 is 4 marks)

4 Here is a speed-time graph.



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

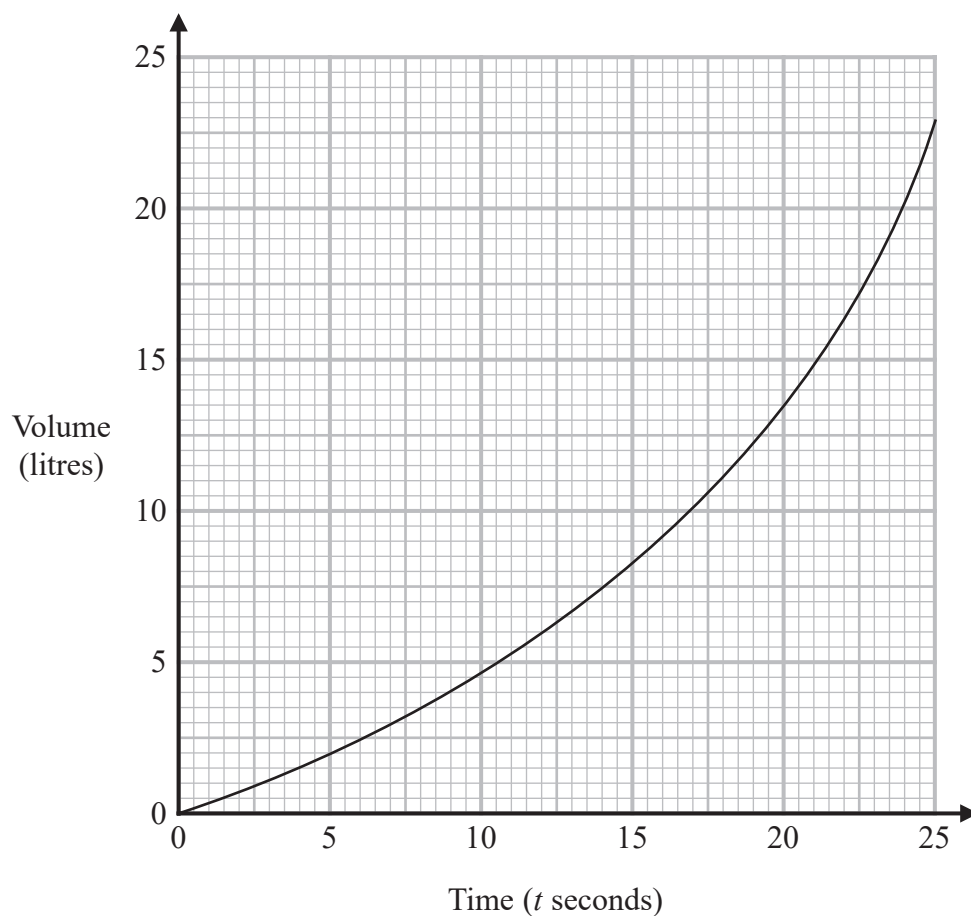
.....
(3)

(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)

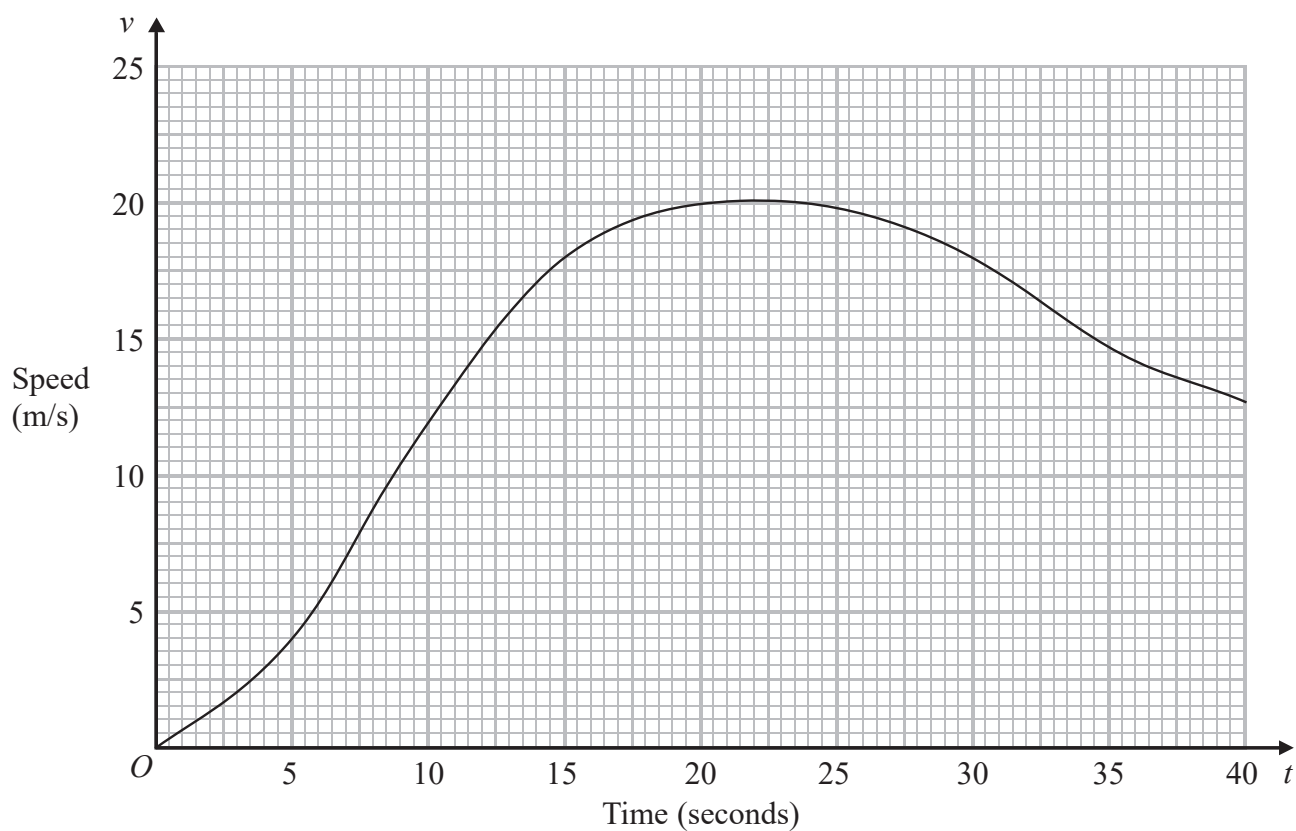
- (b) Describe fully what the gradient in part (a) represents.

.....
.....
.....
(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)

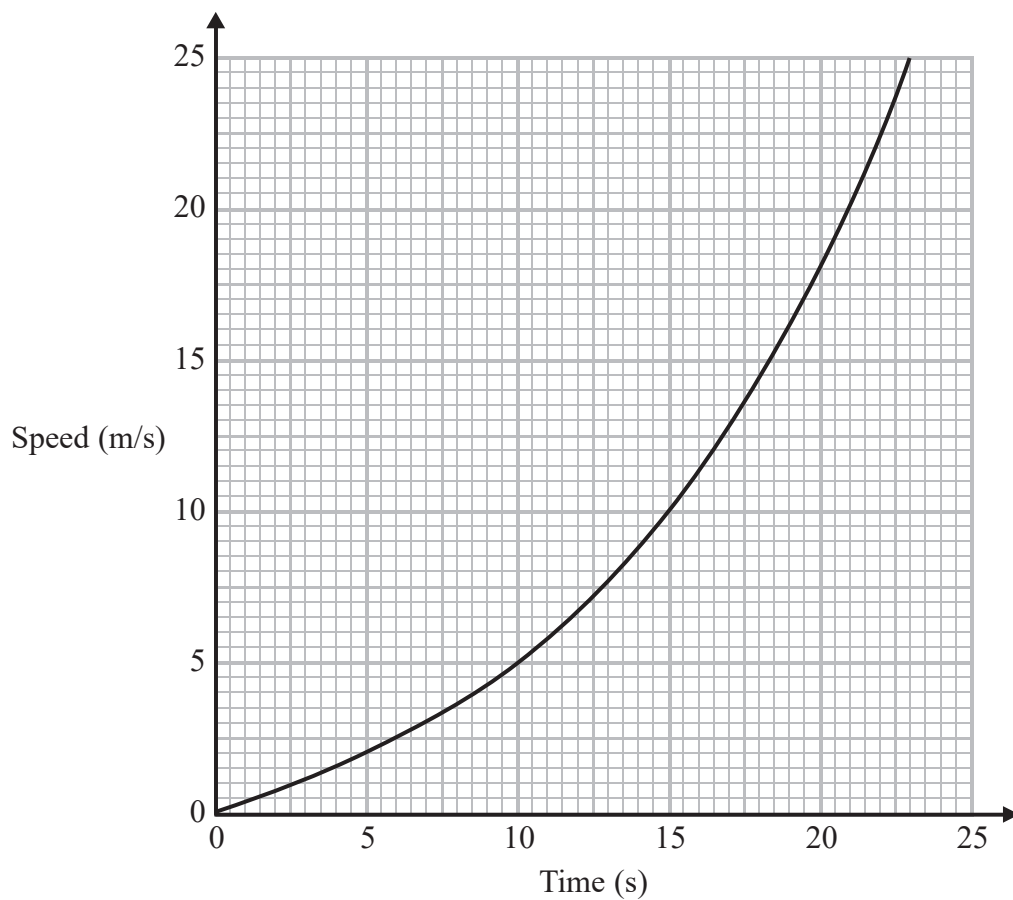
- (b) Work out an estimate for the distance the car travels in the first 20 seconds of its journey.
Use 4 strips of equal width.

.....m

(3)

(Total for Question 6 is 7 marks)

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



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

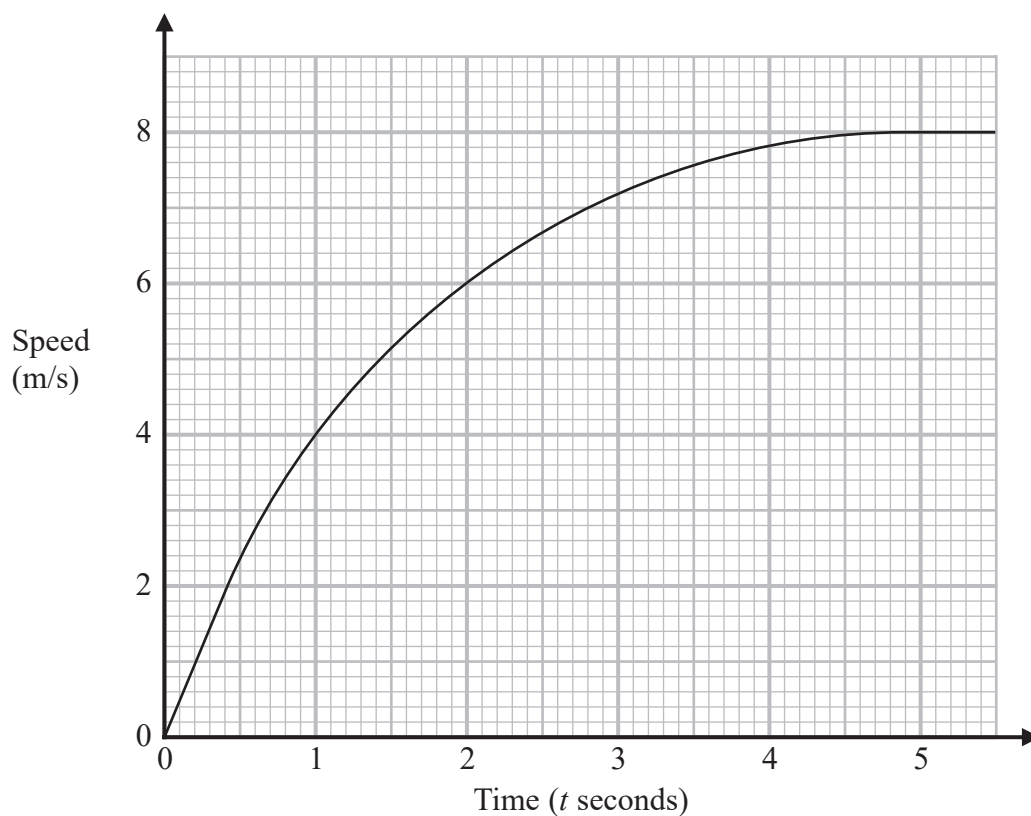
..... m
(3)

- (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 $t = 4$

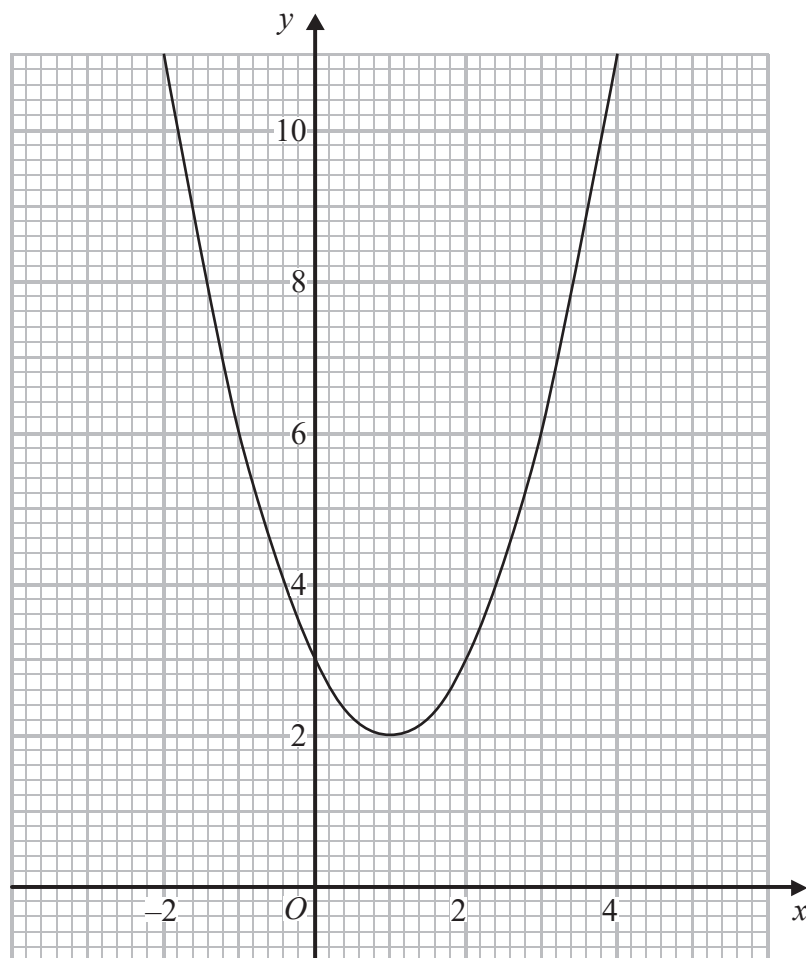
.....
(3)

- (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)

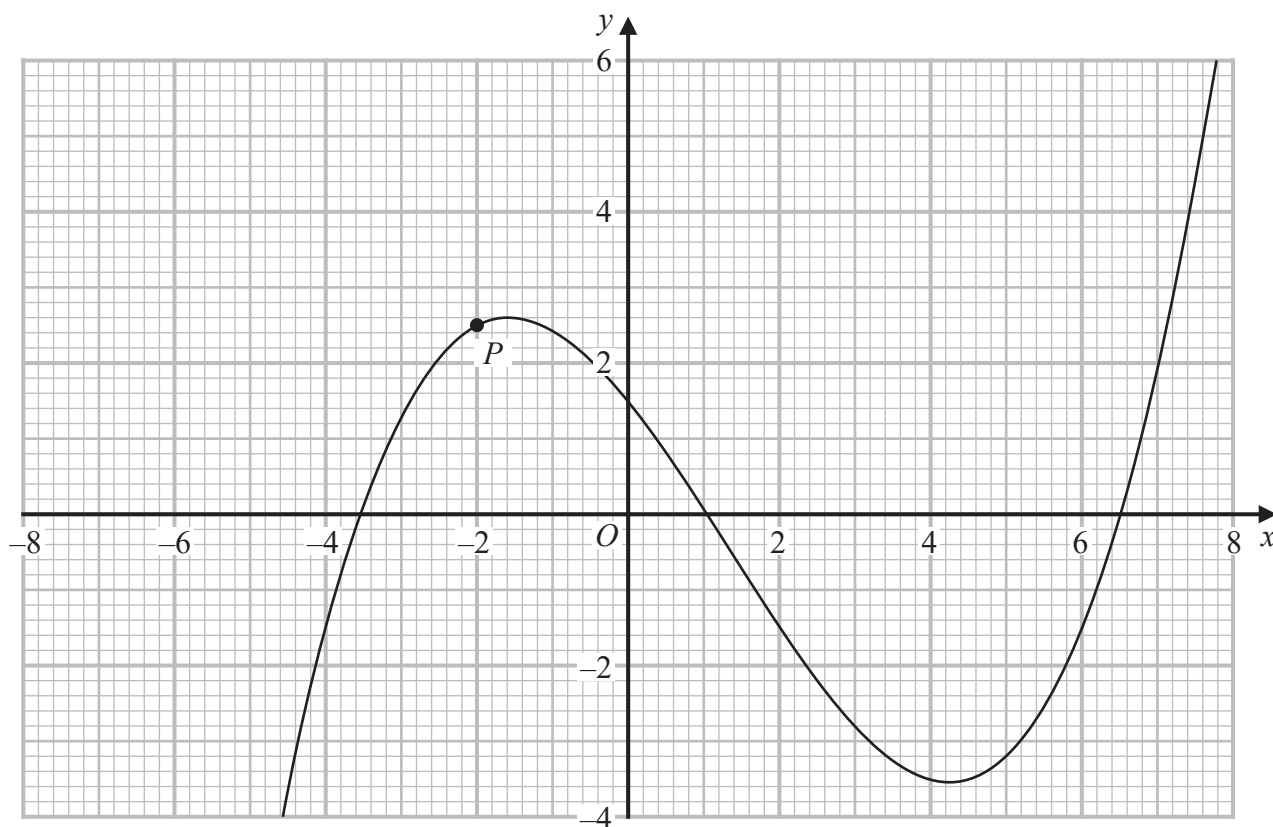
P is the point on the graph of $y = x^2 - 2x + 3$ where $x = 2$

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

.....
(3)

(Total for Question 9 is 5 marks)

10 The diagram shows the graph of $y = f(x)$



The point P has x coordinate -2

Use the graph to find an estimate for the gradient of the curve at P

(Total for Question 10 is 3 marks)