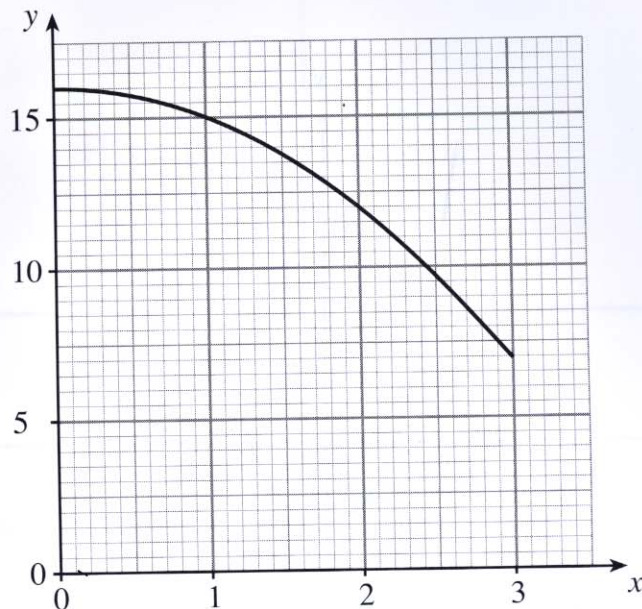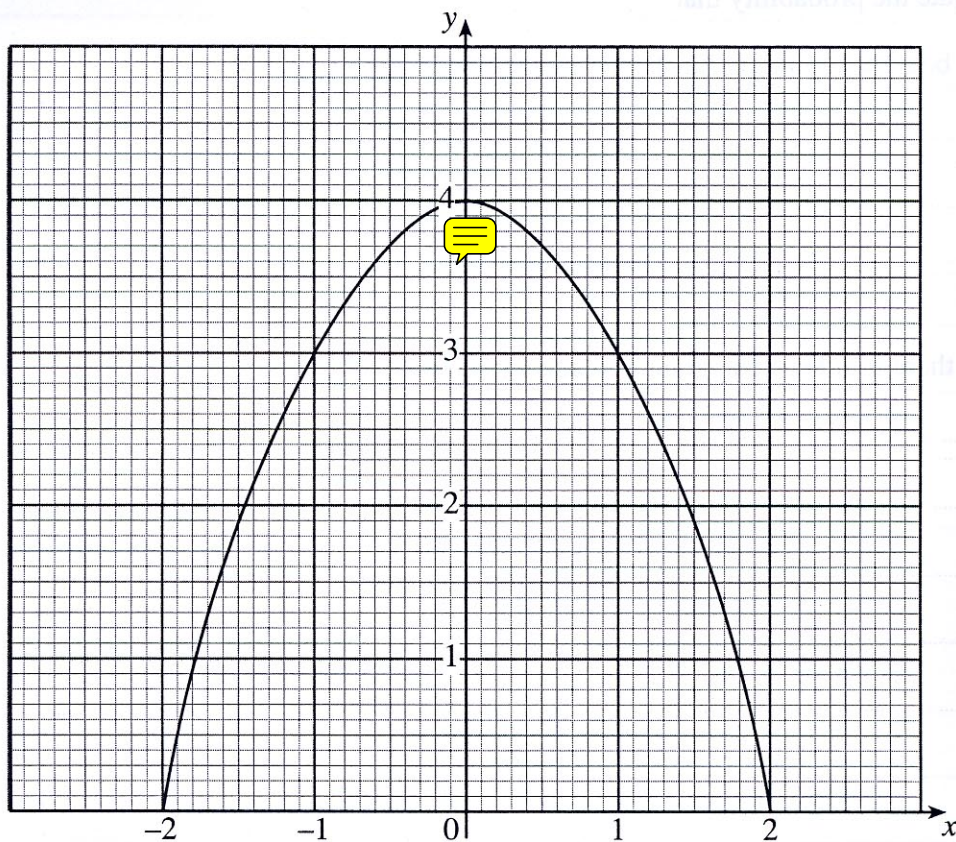**22.** The graph of $y = 16 - x^2$ is shown below for values of x from 0 to 3.

Use the trapezium rule, with the four ordinates $x = 0$, $x = 1$, $x = 2$ and $x = 3$, to estimate the area of the region bounded by the curve, the x-axis, the y-axis and the line $x = 3$.

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[4]

23. The graph of $y = 4 - x^2$ is shown below for values of x from -2 to 2.

Use the trapezium rule, with the five ordinates $x = -2$, $x = -1$, $x = 0$, $x = 1$ and $x = 2$, to estimate the area of the region bounded by the curve and the x-axis.

[3]

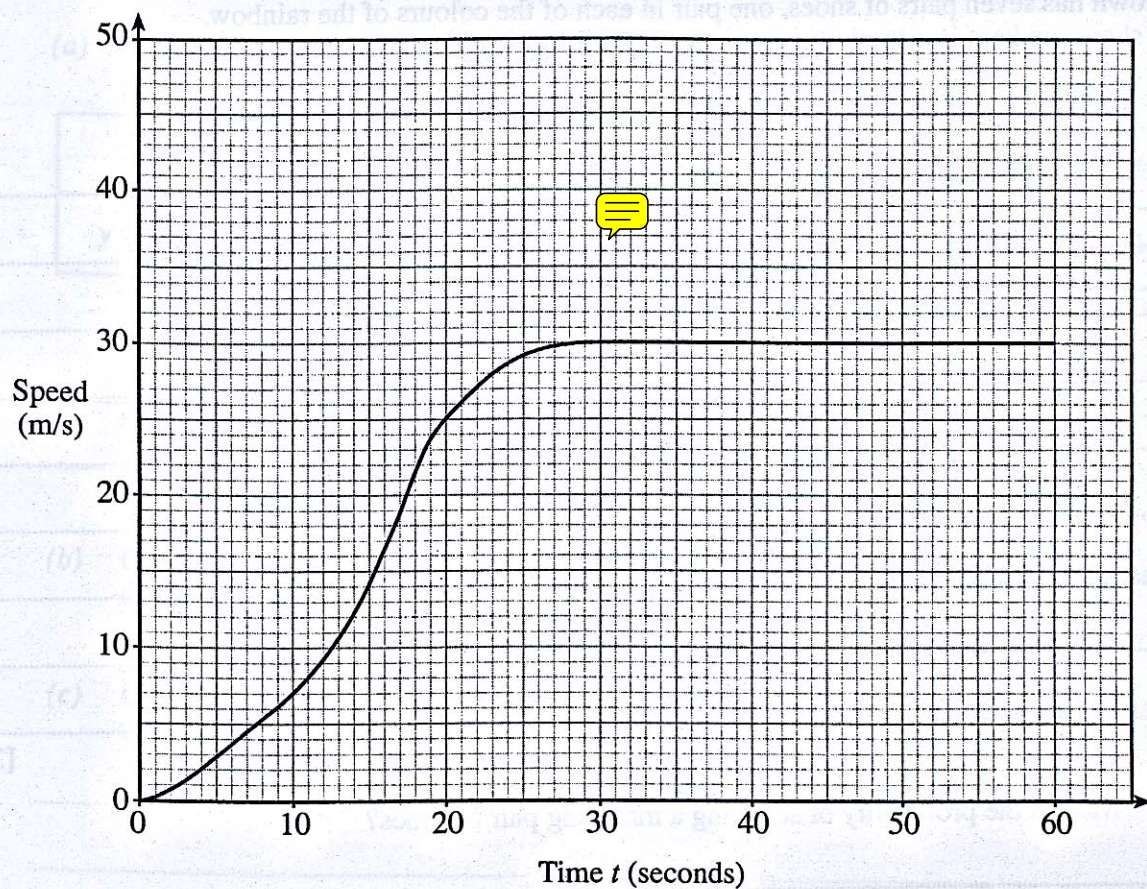**21.** The graph below shows the speed of a train, in m/s, over a period of 60 seconds starting at time $t = 0$ seconds.

(a)   Estimate the acceleration of the train at time $t = 25$ seconds.

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[3]

(b) The table below gives the speed of the train between $t = 0$ to $t = 30$.

Time t (seconds)	0	10	20	30
Speed (m/s)	0	7	25	30

(i) Use the trapezium rule with values taken from the table to estimate the distance, in kilometres, travelled by the train between $t = 0$ and $t = 30$ seconds.

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(ii) Hence estimate the total distance travelled during the 60 seconds.

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[1]