| Day 95 | A Level Maths: C Tier 10-a-day |
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**1** (a) Show that $x^2 - x - 3 = 0$ can be rearranged to $x = 1 + \frac{3}{x}$.

(b) Use $x_{n+1}$ = this formula with $x_0 = 2$ to find $x_1$, $x_2$ to 3 d.p.

**2** Find the sum of the first 5 terms of the geometric series $6 + 24 + 96 + ...$

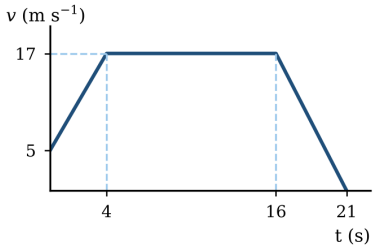
**3** The 190 residents are numbered. A computer generates 25 different random numbers and those people are asked to take part.
Name the sampling method used.

**4** A curve has parametric equations

$x = t$, $y = \frac{3}{t}$, $t \neq 0$.

Find a Cartesian equation of the curve.

**5** The graph shows the velocity of a car.
(a) Find the acceleration in the first 4 s.
(b) Find the deceleration in the last 5 s.
(c) Find the total distance travelled.



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| **6** Find the gradient of the curve $y = (2x - 1)^3$ at the point where $x = 1$. | |
| **7** When $x^3 + kx^2 + 2x - 7$ is divided by $(x - 1)$, the remainder is $-5$. Find the value of k. | |
| **8** Write down the exact value of sin 150°. | |
| **9** A block of mass 4 kg is pulled along rough horizontal ground by a horizontal force of 17.84 N.<br>The coefficient of friction is 0.2. Take $g = 9.8$ m $s^{-2}$. Find the acceleration. | |
| **10** The probability that it rains is 0.4. If so, the probability that Sam is late is 0.7; otherwise it is 0.5.<br>Given that Sam is late, find the probability that it rains. | |