5 **(a)** A 4-digit number is to be formed using the digits 0, 2, 4, 5, 6 and 8.
The 4-digit number must **not** start with 0.
Any digit may be used at most once in the 4-digit number.

(i) Find how many 4-digit numbers can be formed. [1]

(ii) Find how many even 4-digit numbers can be formed. [2]

(iii) Find how many 4-digit numbers that are divisible by 5 can be formed. [2]

(b) Solve the equation $(n+1) \times {}^{n+1}\mathrm{C}_{12} = 33(n-10) \times {}^{n}\mathrm{C}_{10}$. [3]

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6 The volume, V, of a sphere is increasing at the constant rate of $2\pi\,\text{cm}^3\,\text{s}^{-1}$.
Find the rate of change of the surface area, S, of this sphere when the volume of the sphere is $36\pi\,\text{cm}^3$.
[6]

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