4 **(a)** Solve the equation $5^{2y-1} = 6 \times 3^{y}$, giving your answer correct to 3 decimal places. [3]

(b) Solve the equation $e^{2x} - 4 + 3e^{-2x} = 0$, giving your answers in exact form. [4]

5 The volume, V, of a sphere of radius r is given by $V = \frac{4}{3}\pi r^3$.

The volume of a sphere is increasing at a constant rate of $24\,\text{cm}^3\,\text{s}^{-1}$. Find the rate of increase of the radius when the radius is 6 cm. [4]