7 **(a)** A team of 8 people is to be chosen from a group of 15 people.

(i) Find the number of different teams that can be chosen. [1]

(ii) Find the number of different teams that can be chosen if the group of 15 people contains a family of 4 people who must be kept together. [3]

(b) Given that $(n+9) \times {}^{n}\mathrm{P}_{10} = (n^2+243) \times {}^{n-1}\mathrm{P}_{9}$, find the value of n. [3]

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8 A curve has the equation $y = \dfrac{(3x-4)^{\frac{1}{3}}}{2x+1}$.

(a) Show that $\dfrac{\mathrm{d}y}{\mathrm{d}x} = \dfrac{Ax+B}{(2x+1)^2(3x-4)^{\frac{2}{3}}}$, where A and B are integers to be found. [5]

(b) Find the coordinates of the stationary point on the curve. [2]