4 The equation of a curve is such that $\frac{dy}{dx} = kx^3 + \frac{2}{x^2}$, where k is a constant. The curve passes through the point S (2, 20) and the gradient of the curve at S is $\frac{65}{2}$.

(a) Find the value of k. [1]

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(b) The coordinates of a point T on the curve are $(1, t)$.

Find the value of t. [5]

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