A - Level Maths 15 Minute Boost 8

If y is a function of t and t is a function of x then the chain rule states that	
The length of the vector $a\mathbf{i} + b\mathbf{j} + c\mathbf{k}$ is	
$\int \frac{1}{ax+b} \mathrm{d}x$	
How do you solve the differential equation $\frac{dy}{dx} = f(x)g(y) ?$	
A parametric form of the equation of a circle with centre (a, b) and radius r is:	
1 a) Expand $(3 + 2x)^{\frac{1}{5}}$ up to the term including x^3	
b) Use your expansion in (a) to approximate $3.02^{\frac{1}{5}}$	

2 Newton's law of cooling states that the rate at which the temperature of a hot body decreases is proportional to the difference between the temperature of the body and that of the surroundings. Given that $\theta^{\circ}C$ is the excess of the temperature of the the body over the surroundings at time *t* minutes after the start, show that the relationship between θ and *t* is of the form $\theta = Ae^{-kt}$ where *A* and *k* are constants.

