1. Find all integer solutions to the equation \( xy + yz +zx = 0 \).

2. (a) Use Sage to find all coprime integers \( x, y, z \) such that \( x^2 + y^3 = z^7 \). Include your Sage code in your write up, and the amount of time that it took your code to run.

(b) Use ‘the internet’ to check that you’ve found all (i.e., find, using the tools described on the course website, a paper whose main theorem is that that the solutions you found are indeed all of the solutions). Your answer should include a bibliography, and your write-up of this problem should use the \cite{} command.