Harder Simultaneous equations

1. Solve $x^2 - y^2 = 15$ and $x + y = 3$ for x and y.

2. Solve $\begin{cases} (x+1)^2(y+1)^2 = 27xy \\ (x^2+1)(y^2+1) = 10xy \end{cases}$

3. Solve the system, $\begin{cases} ax + by = (x-y)^2 \\ by + cz = (y-z)^2 \\ cz + ax = (z-x)^2 \end{cases}$ where $a, b, c > 0$?

4. If $x + 3y + 5z = 200$ and $x + 4y + 7z = 225$, then what is $x + y + z$ equal to?

5. Solve $\begin{cases} x + \sqrt{y} = 7 \\ y + \sqrt{x} = 11 \end{cases}$