VD unit 3 topic 4 part 1

Solve the systems or equations:

| | |
|---|---|
| 1.<br>$\begin{cases} 2^{x+y} = 32 \\ 3^{x} = 9^{y+2} \end{cases}$<br>$(x, y) = \left(\frac{14}{3}, \frac{1}{3}\right)$ | 2.<br>$\begin{cases} \left(\frac{1}{125}\right)^{x} = 5^{y+1} \\ 27 = 3^{x-y} \end{cases}$<br>$(x, y) = \left(\frac{1}{2}, -\frac{5}{2}\right)$ |
| 3.<br>$\begin{cases} 12^{x} = \frac{1}{144} \\ 2 \bullet 4^{x-y} = 128 \end{cases}$<br>$(x, y) = (-2, -5)$ | 4.<br>$\begin{cases} \sqrt{7}^{x} = \left(\frac{1}{7\sqrt{7}}\right)^{y} \\ \left(\frac{1}{5}\right)^{2x-y} = \sqrt{5} \end{cases}$<br>$(x, y) = \left(-\frac{3}{14}, \frac{1}{14}\right)$ |
| 5.<br>$\log_3(x-3) = \log_9(x-1)$<br>$x = 5$ | 6.<br>$2 - \log_{\frac{1}{\sqrt{5}}} 3(x-2) = 4$<br>$x = \frac{7}{3}$ |
| 7. $-\ln(x+2)^2 = 3$<br>$x = -2 \pm e^{-\frac{3}{2}}$ | 8. $\log_4(2x-3) = \log_2 5$<br>$x = 14$ |