2. If we assume a solution for the Sine Gordan equation of the form $\sigma(u, v) = 4\tan^{-1}\left[\frac{U(u)}{V(v)}\right]$.

What are the equations satisfied by U and V? Show that $\sigma = 4\tan^{-1}\left(\gamma e^{\left(ax+\frac{t}{a}\right)}\right)$ is a solution.

Find some other solutions of this form

$$u = ax + t/a$$
$$v = ax - t/a$$

$\sigma_{uu} - \sigma_{vv} = \sin\sigma$