Circuit theorems 001

Problem has been graded.

A linear system has two inputs, v_a and v_b,
and one output, v_{out} .
When $v_a = v_1$ and $v_b = v_2$, then $v_{out} = v_3$.
When $v_a = v_4$ and $v_b = v_5$, then $v_{out} = v_6$.

What is v_{out}, when $v_a = v_7$ and $v_b = v_8$?

Given Variables:

v1 : 3 V
v2 : 6 V
v3 : 12 V
v4 : 3 V
v5 : 4 V
v6 : 48 V
v7 : 3 V
v8 : 2 V

Calculate the following:

vout (V) :

> Hint: Use the fact that the system is linear