VD 6.3.1

In a plane, vectors $\vec{u}$, $\vec{v}$, $\vec{a}$ and $\vec{b}$ are given. The definition of vector $\vec{w}$ is also defined by vectors $\vec{u}$ and $\vec{v}$. Now Let $\vec{w} = x\vec{a} + y\vec{b}$, where x and y are real numbers. (1) Find the component form of $\vec{w}$. (2) Find the exact value of x and y.

$\vec{u}$	$\vec{v}$	$\vec{a}$	$\vec{b}$	$\vec{w}$	$< w_1, w_2 >$	x	y
<3,1>	<2,4>	<-1, -2>	<3, 0>	-4u + 3v	<-6, 8>	-4	$-\frac{10}{3}$
<-3,2>	<0, -2>	<1, 2>	<2, -3>	2u-v	<-6, 6>	$-\frac{6}{7}$	$-\frac{18}{7}$
<-2, 1>	<1, 3>	<-1, -3>	<3, -1>	3u + 2v	<-4, 9>	$-\frac{23}{10}$	$-\frac{21}{10}$
<4, -1>	<0, 3>	<-1, 3>	<2, 0>	-u + v	<-4, 4>	$\frac{4}{3}$	$-\frac{4}{3}$
<0, 3>	<-3, -2>	<2, 3>	<-1, 4>	2u - 3v	<9, 12>	$\frac{48}{11}$	$-\frac{3}{11}$
<2, 1>	<2, -3>	<0, 2>	<-3, 2>	u + 2v	<6, -5>	$-\frac{1}{2}$	-2
<-2, -2>	<2, -3>	<0, 1>	<3, 1>	u + v	<0, -5>	-5	0