$|\mathbf{a}| = \sqrt{9+36+4} = 7$ so the scalar projection of $\mathbf{b}$ onto $\mathbf{a}$ is $\text{comp}_{\mathbf{a}}\mathbf{b} = \dfrac{\mathbf{a}\cdot\mathbf{b}}{|\mathbf{a}|} = \frac{1}{7}(-14) = -2$. The vector projection of $\mathbf{b}$ onto $\mathbf{a}$ is $\text{proj}_{\mathbf{a}}\mathbf{b} = \dfrac{-14}{7}\dfrac{\mathbf{a}}{|\mathbf{a}|} = \frac{-14}{7}\cdot\frac{1}{7}\langle -3,-6,2\rangle = \frac{-14}{49}\langle -3,-6,2\rangle$
$= \left\langle \frac{6}{7}, \frac{12}{7}, \frac{-4}{7}\right\rangle$.