$$=\left(1+(\xi^1)^4+(\xi^2)^4-2(\xi^1)^2+2(\xi^2)^2-2(\xi^1)^2(\xi^2)^2+4(\xi^1)^2(\xi^2)^2+4(\xi^1)^2\right)^{1/2}$$
$$\times\left(4(\xi^1)^2(\xi^2)^2+1+(\xi^1)^4+(\xi^2)^4+2(\xi^1)^2-2(\xi^2)^2-2(\xi^1)^2(\xi^2)^2+4(\xi^2)^2\right)^{1/2}$$

$$=\left(1+(\xi^1)^4+(\xi^2)^4+2(\xi^1)^2+2(\xi^1)^2(\xi^2)^2+2(\xi^2)^2\right)^{1/2}$$
$$\times\left(1+(\xi^1)^4+(\xi^2)^4+2(\xi^1)^2(\xi^2)^2+2(\xi^1)^2+2(\xi^2)^2\right)^{1/2}$$

$$=\left(1+(\xi^1)^2+(\xi^2)^2\right)^2$$

$$\therefore n=\frac{V_1\times V_2}{|V_1|\,|V_2|}=\left(\frac{2\xi^1}{1+(\xi^1)^2+(\xi^2)^2},\frac{2\xi^2}{1+(\xi^1)^2+(\xi^2)^2},\frac{(\xi^1)^2+(\xi^2)^2-1}{1+(\xi^1)^2+(\xi^2)^2}\right)$$

$$\frac{\partial n}{\partial\xi^1}=\left(\frac{2(1+(\xi^1)^2+(\xi^2)^2)-4(\xi^1)^2}{(1+(\xi^1)^2+(\xi^2)^2)^2},\frac{-4\xi^1\xi^2}{(1+(\xi^1)^2+(\xi^2)^2)^2},\right.$$
$$\left.\frac{(1+(\xi^1)^2+(\xi^2)^2)\cdot2\xi^1-((\xi^1)^2+(\xi^2)^2-1)\cdot2\xi^1}{(1+(\xi^1)^2+(\xi^2)^2)^2}\right)$$

$$=\left(\frac{2(1-((\xi^1)^2-(\xi^2)^2))}{(1+(\xi^1)^2+(\xi^2)^2)^2},\frac{-4\xi^1\xi^2}{(1+(\xi^1)^2+(\xi^2)^2)^2},\frac{4\xi^1}{(1+(\xi^1)^2+(\xi^2)^2)^2}\right)$$

$$\frac{\partial n}{\partial\xi^2}=\left(\frac{-4\xi^1\xi^2}{(1+(\xi^1)^2+(\xi^2)^2)^2},\frac{2(1+(\xi^1)^2+(\xi^2)^2)-4(\xi^2)^2}{(1+(\xi^1)^2+(\xi^2)^2)^2},\right.$$
$$\left.\frac{(1+(\xi^1)^2+(\xi^2)^2)\cdot2\xi^2-((\xi^1)^2+(\xi^2)^2-1)\cdot2\xi^2}{(1+(\xi^1)^2+(\xi^2)^2)^2}\right)$$

$$=\left(\frac{-4\xi^1\xi^2}{(1+(\xi^1)^2+(\xi^2)^2)^2},\frac{2(1+(\xi^1)^2-(\xi^2)^2)}{(1+(\xi^1)^2+(\xi^2)^2)^2},\frac{4\xi^2}{(1+(\xi^1)^2+(\xi^2)^2)^2}\right)$$

The diagonal entries of the Weingarten map are given by $\langle v_1, \partial n/\partial\xi^1\rangle$ and $\langle v_2, \partial n/\partial\xi^2\rangle$ times a constant see opp.

$$\langle v_1,\partial n/\partial\xi^1\rangle=\left(1-((\xi^1)^2-(\xi^2)^2),-2\xi^1\xi^2,2\xi^1\right)$$
$$\cdot\left(\frac{2(1-((\xi^1)^2-(\xi^2)^2))}{(1+(\xi^1)^2+(\xi^2)^2)^2},\frac{-4\xi^1\xi^2}{(1+(\xi^1)^2+(\xi^2)^2)^2},\frac{4\xi^1}{(4(\xi^1)^2+(\xi^2)^2)^2}\right)$$
$$=\frac{1}{(1+(\xi^1)^2+(\xi^2)^2)^2}\left(2(1-(\xi^1)^2-(\xi^2)^2)^2+8(\xi^1)^2(\xi^2)^2+8(\xi^1)^2\right)$$
$$=\frac{2+2(\xi^1)^4+2(\xi^2)^4-4(\xi^1)^2+4(\xi^2)^2-4(\xi^1)^2(\xi^2)^2+8(\xi^1)^2(\xi^2)^2+8(\xi^1)^2}{(1+(\xi^1)^2+(\xi^2)^2)^2}$$