Simplify each radical and then combine.

$$x^2 \sqrt[4]{16x^2y^2} + x\sqrt[4]{81x^6y^2} = x^2\sqrt[4]{16}\sqrt[4]{x^2y^2} + x\sqrt[4]{81}\sqrt[4]{x^4}\sqrt[4]{x^2y^2}$$

$$= 2x^2\sqrt[4]{x^2y^2} + 3x^2\sqrt[4]{x^2y^2} = \left(2x^2 + 3x^2\right)\sqrt[4]{x^2y^2} =$$

$$5x^2\sqrt[4]{x^2y^2}$$