Use the properties of exponents to simplify $\dfrac{x^{10}(x^{-5}y)^2}{7zy^2}$ .

$$\dfrac{x^{10}(x^{-5}y)^2}{7zy^2} = \dfrac{x^{10}(x^{-10}y^2)}{7zy^2} \qquad (ab)^n = a^n b^n \ \ and \ \ (a^m)^n = a^{mn}$$

$$= \dfrac{x^0 y^2}{7zy^2} = \dfrac{y^2}{7zy^2}$$

$$= \dfrac{1}{7z}$$