History of Mathematical Ideas
Quiz 11

Name:_____

You have 10 minutes to complete this quiz. If you have a question raise your hand and remain seated. In order to receive full credit your answer must be **complete**, **legible** and **correct**. Show your work, and give adequate explanations.

1. Show how to compute the intersection multiplicity between the curves $y = x^2$ and $y = -x^2$ at the point $(0, 0)$.

$$\begin{aligned} I_P(y - x^2, y + x^2) &= I_P((y - x^2) + (y + x^2), y + x^2) = I_P(2y, y + x^2) \\ &= I_P(2y, x^2) \\ &= I_P(2, x^2) + I_P(y, x^2) = I_P(y, x^2) \\ &= I_P(y, x) + I_P(y, x) \\ &= 2. \end{aligned}$$