[I] (40pts) In each of (1) through (8), find all the intersection points in \( \mathbb{P}^2(\mathbb{C}) \). Moreover, find the local intersection multiplicity at each intersection point in \( \mathbb{P}^2(\mathbb{C}) \). Confirm that Bézout’s theorem holds in each of (1) through (8).

(1) \( X^2 + Y^2 = Z^2, \quad X^2 + Y^2 = 2Z^2. \)
([I] continued)

(2) \[ X^2 + 3Y^2 = Z^2, \quad 3X^2 + Y^2 = Z^2. \]
(3) \( X^2 + Y^2 = Z^2, \quad X^2 + Y^2 = -Z^2. \)
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([I] continued)

(4) \[X^2 + Y^2 = Z^2, \quad X^2 + 2Y^2 = Z^2.\]
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([I] continued)

(5) \( X^2 + Y^2 = YZ \), \( X^2 + 2Y^2 = YZ \).
(I) continued)

(6) \( X^2 + 6Y^2 = 15YZ, \quad X^2 + Y^2 = 5YZ. \)
(I) continued)

(7) \[ X^2 + 2XY + Y^2 = YZ, \quad X^2 - 2XY + Y^2 = YZ. \]
(8) \[ X^2 = YZ, \quad X^2 = 2YZ. \]