PROBLEMS AND SOLUTIONS - SYSTEMS OF NON-LINEAR EQUATIONS
Prepared by Ingrid Stewart, Ph.D., College of Southern Nevada
Please Send Questions and Comments to ingrid.stewart@csn.edu. Thank you!

PLEASE NOTE THAT YOU CANNOT ALWAYS USE A CALCULATOR ON THE ACCUPLACER - COLLEGE-LEVEL MATHEMATICS TEST! YOU MUST BE ABLE TO DO SOME PROBLEMS WITHOUT A CALCULATOR!

Problem 1:
Solve the following system. Express your answer(s) as coordinates.

\[ y - x^2 = -11 \]
\[ y^2 + x^2 = 13 \]

Problem 2:
Solve the following system. Express your answer(s) as coordinates.

\[ x + y = 0 \]
\[ x^3 - 5x - y = 0 \]

Problem 3:
Solve the following system. Express your answer(s) as coordinates.

\[ x^2 + y^2 = 1 \]
\[ y = -x + 3 \]

Problem 4:
Solve the following system. Express your answer(s) as coordinates.

\[ y = x^2 - 2x \]
\[ y = x - 2 \]
Problem 5:

Solve the following system. Express your answer(s) as coordinates.

\[ y = 2x \]
\[ xy = 4 \quad \text{NOTE:} \quad y = \frac{4}{x} \]

Problem 6:

Solve the following system. Express your answer(s) as coordinates.

\[ y = x - 3 \]
\[ x^2 + y^2 = 9 \]

---

**SOLUTIONS**

You can find detailed solutions below the link for this problem set!

<table>
<thead>
<tr>
<th></th>
<th>1. ((2\sqrt{3},1), (-2\sqrt{3},1)) (3, -2), (-3, -2)</th>
<th>2. ((0,0), (-2,2), (2,-2))</th>
<th>3. No solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.</td>
<td>((2, 0), (1, -1))</td>
<td>5. ((-\sqrt{2}, -\sqrt{2}), (\sqrt{2}, -\sqrt{2}))</td>
<td>6. ((0, -3), (3, 0))</td>
</tr>
</tbody>
</table>