

Supplements for Math 260S Lab Hour (Category 8 and 9)

1. (1 hour)

Solving two/three equations with two/three unknowns for a unique solution. Use any appropriate method to solve the equations:

- Review possibilities of solutions for two equations and two unknowns.  
Draw graphs to show: Unique solution, no solution, infinite solutions.
- Review Substitution and Elimination method using the problems below.
- $3x + y = 4$   
 $y = 6x - 5$
- $6x - 10y = -22$   
 $-11x - 15y = 27$
- $4y + 2x = 18$   
 $3x + 6y = 26$
- $3x - y = 7$   
 $x + y = 1$
- $2x = 4y + 7$   
 $x - 2y = 5$
- $x - y = 10$   
 $3x = 3y + 30$
- $\frac{x}{2} + \frac{y}{3} = \frac{7}{6}$   
 $\frac{2x}{3} + \frac{3y}{4} = \frac{5}{4}$
  
- $x + y + z = -5$   
 $2x + 3y - 2z = 8$   
 $x - y + 4z = -21$
- $-3x + y - 2z = 8$   
 $-x + 2y - z = 5$   
 $2x + y + z = -3$
- $2x + 2y = 0$   
 $4x + 4z = 4$   
 $2x + y + z = 2$
- $x + 3y - 3z = 12$   
 $3x - y + 4z = 0$   
 $-x + 2y - z = 1$

## 2. (3 hours)

Solving equations: Quadratic Type, Absolute Value, fractional powers and radical.

- $x^2 - 81 = 0$
- $3x^3 - 81 = 0$
- $2x^2 - 11x + 15 = 0$
- $-(x^2 + 2)^2 + 8(x^2 + 2) - 12 = 0$
- $2x^2 - 5x + 10 = 0$
- $x^2 + 4x + 1 = 0$
- $(2m + 1)^{\frac{2}{3}} - 2(2m + 1)^{\frac{1}{3}} - 8 = 0$
- $2x(4x + 5) = -8$
- $(x + 8)(x - 3) = -30$
- $3x^2 + 5x = 2$
- $x^4 + 7x^2 - 8 = 0$
- $x^{\frac{4}{5}} - 3x^{\frac{2}{5}} - 85 = 3$
- $|3x - 5| = 11$
- $|-x + 7| = |x + 5|$
- $\sqrt[3]{x^2 - 19} = 5$
- $\sqrt{x + 5} = 10$
- $2\sqrt{-2x + 5} = 10 - x$
- $4 + \sqrt{10 - x} = 6 + \sqrt{4 - x}$
- $\sqrt{x + 1} + \sqrt{3x + 4} = 2$