# Gauss-Seidel Method for solving linear equations

9x1 - 2x2 + 3x3 + 2x4 = 54.5

2x1, + 8x2 - 2x3 + 3x4 = -14

-3x1 + 2x2 + 11x3 - 4x4 = 12.5

-2x1 + 3x2 + 2x3 + 10x4 = -21

x1 = (54.5 + 2x2 - 3x3 - 2x4) / 9

x2 = (-14 - 2x1 + 2x3 - 3x4) / 8

x3 = (12.5 + 3x1 - 2x2 + 4x4) / 11

x4 = (-21 + 2x1 - 3x2 - 2x3) / 10

**Initialise values**:

x1 = 0, x2 = 0, x3 = 0, x4 = 0

**First Iteration:**

x1 = (54.5 + 2(0) - 3(0) - 2(0)) / 9 = 6.0556

x2 = (-14 - 2(6.0556) + 2(0) - 3(0)) / 8 = -3.2639

x3 = (12.5 + 3(6.0556) - 2(-3.2639) + 4(0)) / 11 = 3.3813

x4 = (-21 + 2(6.0556) - 3(-3.2639) - 2(3.3813)) / 10 = -0.586

**Second Iteration:**

x1 = (54.5 + 2(-3.2639) - 3(3.3813) - 2(-0.586)) / 9 = 4.3334

x2 = (-14 - 2(4.3334) + 2(3.3813) - 3(-0.586)) / 8 = -1.7683

x3 = (12.5 + 3(4.3334) - 2(-1.7683) + 4(-0.586)) / 11 = 2.4266

x4 = (-21 + 2(4.3334) - 3(-1.7683) - 2(2.4266)) / 10 = -1.1882