Jacob Draper

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TAM 470 PA #5

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| **Δx** | **Δy** | ***u*(x=1.0, y=0.5)** | ***uexact*(x=1.0, y=0.5)** | ***error*=|*u*(x=1.0, y=0.5)-*uexact*(x=1.0, y=0.5)|** |
| 0.5 | 0.25 | 1.6496802263 | 1.6487212707 | .0009589556 |
| 0.25 | 0.125 | 1.6489682027 | 1.6487212707 | .0002469320 |
| 0.125 | 0.0625 | 1.6487834870 | 1.6487212707 | .0000622163 |
| 0.0625 | 0.03125 | 1.6487368556 | 1.6487212707 | .0000155849 |

**Convergence Rate Noted:**

Upon halving our **Δx** and **Δy** values, we observed an error that converges by nearly a factor of 4 for each consecutive interval. With each successive halving of the intervals we observed a convergence factor of 3.8834804724, 3.9689277569, and 3.992088496 respectively. This is what we expect to observe when we halve both the x and y spacing. Each successive halving caused our convergence factor to better approach a factor of four.