Test Cases & Validation

This document presents formally defined inheritance test cases used to validate the Islamic Law of Succession (Farāʾiḍ) calculation engine. Each case reflects classical Sunni jurisprudence based on Qurʾanic injunctions.

Test Case TC-01: Common Family Structure

- **Heirs:** Wife (1), Sons (2), Daughter (1)
- **Estate:** $1,000,000
- **Shares Applied:**
  - Wife: 1/8
  - Children: Residue (male = 2 × female)
- **Expected Outcome:**
  - Wife: $125,000
  - Each Son: $291,666.67
  - Daughter: $145,833.33

Reference: Qurʾan 4:11, 4:12

Test Case TC-02: Single Daughter Only

- **Heirs:** One Daughter

- **Estate:** $600,000
- **Shares Applied:** Daughter receives 1/2
- **Expected Outcome:** Daughter: $300,000
- **Note:** Remaining estate subject to Radd if no residuary

Reference: Qur'an 4:11

Test Case TC-03: Multiple Daughters Only

- **Heirs:** Two Daughters
- **Estate:** $900,000
- **Shares Applied:** Daughters collectively receive 2/3
- **Expected Outcome:**
    - Each Daughter: $300,000
- **Note:** Radd applies if no residuary

Reference: Qur'an 4:11

Test Case TC-04: No Children

- **Heirs:** Wife, Father, Mother
- **Estate:** $1,200,000
- **Shares Applied:**
    - Wife: 1/4
    - Mother: 1/3
    - Father: Residue
- **Expected Outcome:**
    - Wife: $300,000

- ○ Mother: $400,000
  - ○ Father: $500,000

Reference: Qur'an 4:11, 4:12

Test Case TC-05: Residue Scenario

- **Heirs:** Father, Two Daughters
- **Estate:** $800,000
- **Shares Applied:**

  - ○ Daughters: 2/3
  - ○ Father: Residue
- **Expected Outcome:**

  - ○ Each Daughter: $266,666.67
  - ○ Father: $266,666.66

Reference: Qur'an 4:11

Test Case TC-06: Radd Scenario

- **Heirs:** Mother only
- **Estate:** $300,000
- **Shares Applied:** Mother initially receives 1/3
- **Expected Outcome:** Mother receives entire estate via Radd

Reference: Qur'an 4:11

Test Case TC-07: Scholarly Edge Case

- **Heirs:** Mother, Maternal Siblings
- **Estate:** $500,000
- **Shares Applied:**
  - Mother: 1/6
  - Maternal Siblings: 1/3 collectively
- **Note:** Requires careful fixed-share validation

Reference: Qur'an 4:12

📄 Download Test Cases (PDF)

Validation Notice:
These test cases are aligned with classical Sunni jurisprudence (Farāʾiḍ). They are intended for educational and validation purposes and should be reviewed by qualified scholars prior to legal or institutional use.