Answers

1. \(x = (\frac{3}{5}, -\frac{7}{5}, \frac{34}{65})\).

2. \((a_n, b_n, c_n) = (-6)^n (1, -3, 1) - 2(-1)^n (1, 0, -1) + 3 \cdot 5^n (3, 2, 3)\).

3. Hyperbolic cylinder. \(\pm \frac{\sqrt{3}}{3} (1, -1, -1)\).

4. Only \(F\) is an orthogonal projection. \(U\) is the plane whose equation is \(2x_1 + 2x_2 + x_3 = 0\).