```
function [e1, e2] = hw5(n)
    f = @(x) (2-x.*x)./(1+x.*x);
    dfdx = @(x) -6*x ./ (1+x.*x)^2;

    nn = 2*n + 1;
    mesh.conn = [1:2:nn-1; 2:2:nn; 3:2:nn];
    mesh.x = linspace(0, 4, nn);

    e1 = 0;
    e2 = 0;
    for c = mesh.conn
        xe = mesh.x(:,c);
        fe = f(xe);
        for q = quadrature(7)
            [N, dNdp] = shape(q(1));
            J = xe*dNdp;
            dNdx = dNdp / J;
            e1 = e1 + (f(xe*N) - fe*N)^2 * J * q(2);
            e2 = e2 + (dfdx(xe*N) - fe*dNdx)^2 * J * q(2);
        end
    end
    e1 = sqrt(e1);
    e2 = sqrt(e2);
end

function [N, dNdp] = shape(p)
    N = [-0.5*(1-p)*p; 1-p^2; 0.5*(1+p)*p];
    dNdp = [p-0.5; -2*p; p+0.5];
end
```