```
function newtonseq = newtonseq(x0, k, stepsize)
    %Funcition to calculate the newton's method sequence up to step k
    %of the initial conditions x0 given.

    %k should be an integer > 1
    %x0 should be a 1x2 array of real numbers

    % Initialize the array with zeros
    newtonseq = zeros(k, 2);

    newtonseq(1, :) = x0;

    % Populate the array element-wise
    for i = 1:k-1
        [~, g_step, H_step] = fentonfgH(newtonseq(i, :));

        % Computing QR of H_step for inverse
        [Q, R] = qr(H_step);

        % Solving QRx = b => Rx = Q^T b
        b = Q' * g_step';
        x = fixed.backwardSubstitute(R, b);

        newtonseq(i+1, :) = newtonseq(i, :) - stepsize * x';
    end
end
```

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