**Lab 1：Introduction**

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| **Introduction**  In this lab.  3.5 Periodic discrete time signal can be represented in form of sum of DTFS coefficient component. The lab shows transformation of DTFS to original signal and the reversion of it.  The generated signal becomes converge to original signal after more DTFS coefficient component added to the sum.  3.8 DTFS coefficient shows contribution of each frequency. When input signal goes through the system, each coefficient gets a gain. So. the eigen function can show properties of system.  Target of this lab:  3.5 Learn generating signal after knowing DTFS coefficient.  Learn generating ak using fft function.  Learn process of signal synthesis by adding more DTFS coefficient component.  3.8 Learn generating frequency response by using freqz.  Learn use eigen function to show the properties of system.  **Lab results & Analysis**：  Part 3.5                                                      **Note**: Please indicate meaning of the symbols in all expressions. Please indicate the coordinate and unit in all figures. | |
| **Experience** | |
| **Score** | Score according to targets in introduction.  3.5: 100  3.8: 100 |

**Code:**

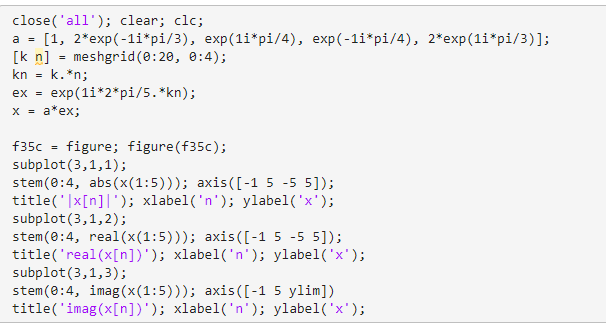
**3.5(a)**

**None**

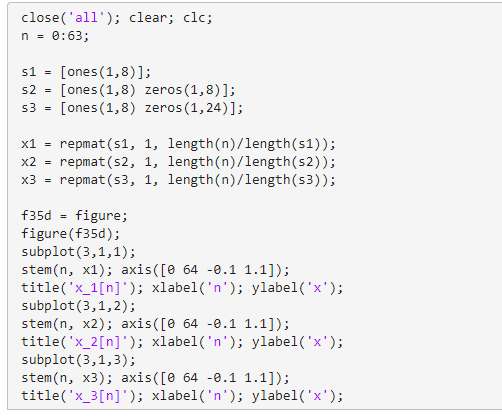
**3.5(b)**

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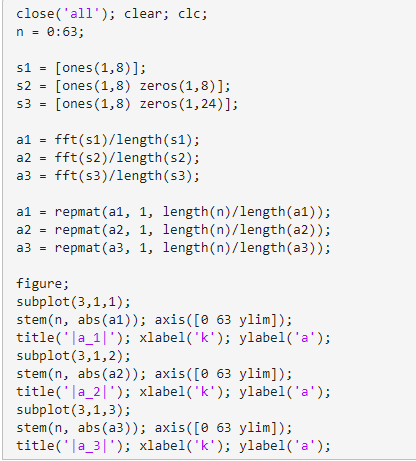
**3.5(c)**

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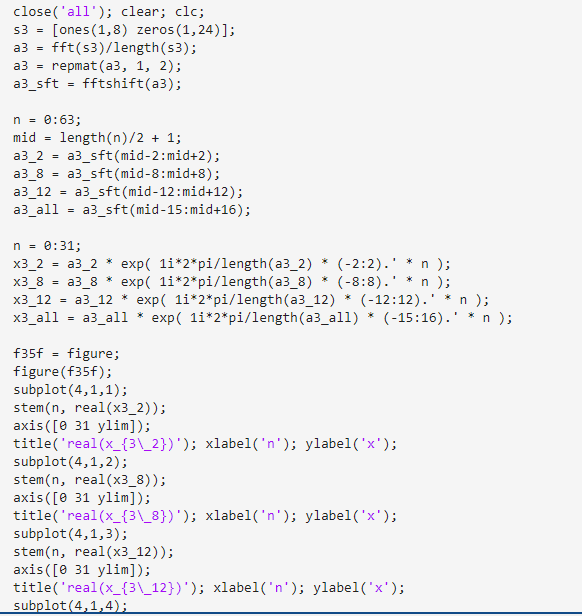
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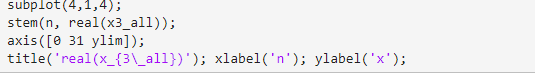
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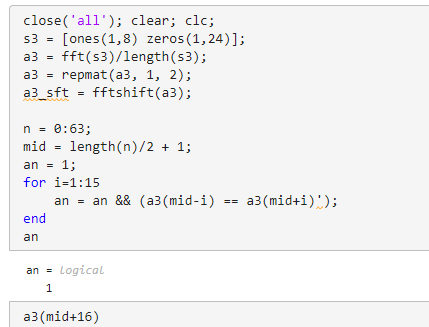
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**3.5(f)**

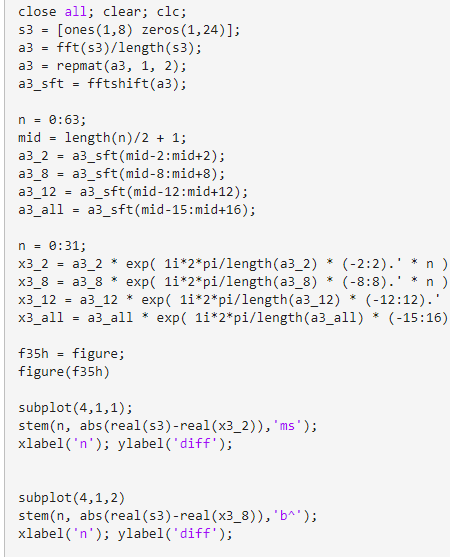
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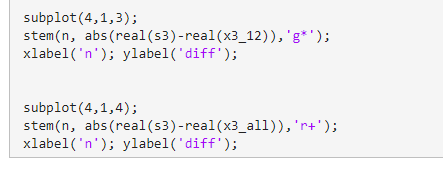
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**3.5(g)**

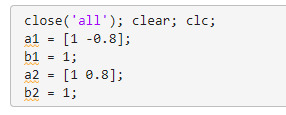
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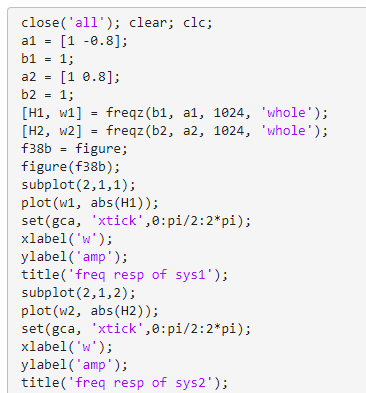
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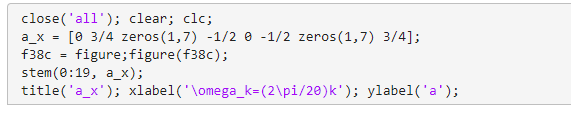
**3.8(a)**

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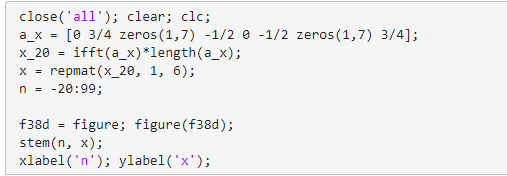
**3.8(b)**

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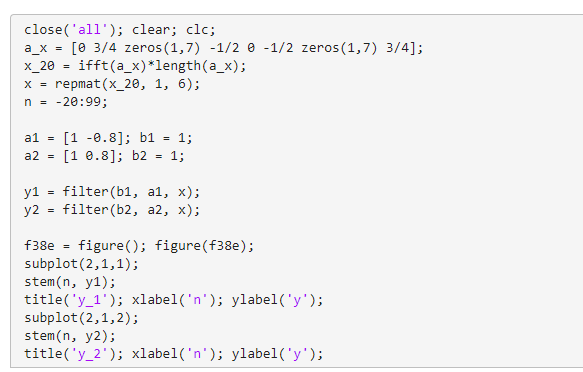
**3.8(c)**

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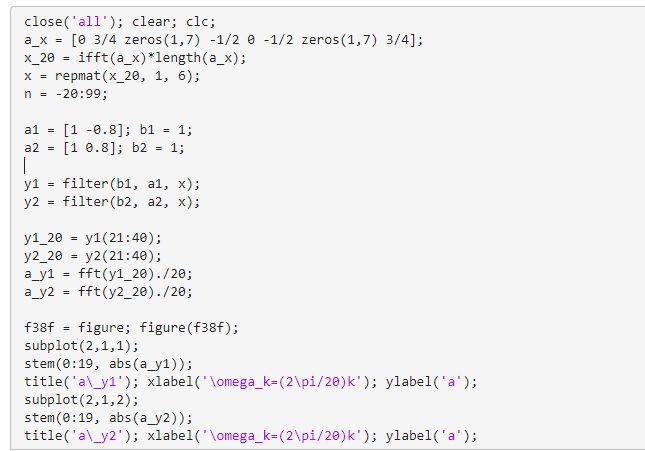
**3.8(d)**

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**3.8(e)**

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**3.8(f)**

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