**ME192**

**Homework #3 – Answers**

**9-17-14**

2.19 The Euler angle transformations that express the step rotations in terms of the fixed angle of the original frame {A}:

  

Pre-multiplying the rotations and simplifying the terms using 



3.3

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| i | αi-1 | a i-1 | d i | θ i |
| 1 | 0 | 0 | 0 | θ 1 |
| 2 | 90° | L1 | 0 | θ 2 |
| 3 | 0 | L2 | 0 | θ 3 |

 



3.16

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| c | αi-1 | a i-1 | d i | θ i |
| 1 | 0 | 0 | 0 | θ 1 |
| 2 | 90° | L1 | d2 | 0 |
| 3 | -90° | 0 | 0 | θ3 |

3.17

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| c | αi-1 | a i-1 | d i | θ i |
| 1 | 0 | 0 | 0 | θ1 |
| 2 | 90° | 0 | L1 | θ2 |
| 3 | 90° | L2 | D3 | θ3 |