

|    | A   | B            | C                | D                | E                |
|----|---|--------------|------------------|------------------|------------------|
| 1  | Grady Sullivan                                  |              |                  |                  |                  |
| 2  | 10/5/201  |              |                  |                  |                  |
| 3  | ECE 202 - E2 (part b)                           |              |                  |                  |                  |
| 4  | Three Dampings for Parallel RLC                 |              |                  |                  |                  |
| 5  |   |              |                  |                  |                  |
| 6  | $v1(t) = A1e^{s1t} + A2e^{s2t}$                 |              |                  |                  |                  |
| 7  | $v2(t) = Ae^{-a2t} + Bte^{-a2t}$                |              |                  |                  |                  |
| 8  | $v3(t) = ae^{-a3t}\cos(wt) + be^{-a3t}\sin(wt)$ |              |                  |                  |                  |
| 9  |   |              |                  |                  |                  |
| 10 | <b>t min (ms)</b>                               |              | <b>s1 (Hz)</b>   | <b>a 2 (Hz)</b>  | <b>a 3 (Hz)</b>  |
| 11 | 0   |              | -800             | 500              | 120              |
| 12 |   |              |                  |                  |                  |
| 13 | <b>t max (ms)</b>                               |              | <b>s2 (Hz)</b>   | <b>A (V)</b>     | <b>w (rad/s)</b> |
| 14 | 40  |              | -200             | 12               | 450              |
| 15 |   |              |                  |                  |                  |
| 16 | <b>N (intervals)</b>                            |              | <b>A1 (V)</b>    | <b>B (V)</b>     | <b>a (V)</b>     |
| 17 | 400   |              | 16               | -6000            | 12               |
| 18 |   |              |                  |                  |                  |
| 19 | <b>dt (ms)</b>                                  |              | <b>A2 (V)</b>    |                  | <b>b (V)</b>     |
| 20 | 0.1   |              | -4               |                  | -5               |
| 21 |   |              |                  |                  |                  |
| 22 | <b>t (ms)</b>                                   | <b>t (s)</b> | <b>v1(t) (V)</b> | <b>v2(t) (V)</b> | <b>v3(t) (V)</b> |
| 23 | 0   | 0            | 12               | 12               | 12               |
| 24 | 0.1   | 0.0001       | 10.84906685      | 10.84401544      | 11.6226164       |
| 25 | 0.2   | 0.0002       | 9.791142867      | 9.772244115      | 11.22927733      |
| 26 | 0.3   | 0.0003       | 8.818987643      | 8.77922136       | 10.82120403      |
| 27 | 0.4   | 0.0004       | 7.925919208      | 7.85981523       | 10.3996203       |
| 28 | 0.5   | 0.0005       | 7.105771064      | 7.009207048      | 9.965749916      |
| 29 | 0.6   | 0.0006       | 6.352852522      | 6.222873054      | 9.520813933      |
| 30 | 0.7   | 0.0007       | 5.66191208       | 5.4965671        | 9.066028171      |
| 31 | 0.8   | 0.0008       | 5.028103629      | 4.826304331      | 8.602600721      |
| 32 | 0.9   | 0.0009       | 4.44695525       | 4.208345801      | 8.131729544      |
| 33 | 1   | 0.001        | 3.914340414      | 3.639183958      | 7.65460014       |
| 34 | 1.1   | 0.0011       | 3.426451395      | 3.115528976      | 7.172383308      |
| 35 | 1.2   | 0.0012       | 2.979774731      | 2.634295853      | 6.686232983      |
| 36 | 1.3   | 0.0013       | 2.571068568      | 2.192592262      | 6.197284164      |
| 37 | 1.4   | 0.0014       | 2.197341748      | 1.787707094      | 5.706650931      |
| 38 | 1.5   | 0.0015       | 1.855834508      | 1.417099658      | 5.215424552      |
| 39 | 1.6   | 0.0016       | 1.544000659      | 1.078389514      | 4.724671691      |
| 40 | 1.7   | 0.0017       | 1.25949114       | 0.769346878      | 4.235432698      |
| 41 | 1.8   | 0.0018       | 1.000138835      | 0.487883592      | 3.748720011      |
| 42 | 1.9   | 0.0019       | 0.763944554      | 0.232044614      | 3.265516644      |
| 43 | 2   | 0.002        | 0.549064104      | 0                | 2.78677478       |
| 44 | 2.1   | 0.0021       | 0.353796337      | -0.209962649     | 2.313414462      |
| 45 | 2.2   | 0.0022       | 0.176572137      | -0.3994453       | 1.846322383      |
| 46 | 2.3   | 0.0023       | 0.015944236      | -0.569946185     | 1.386350776      |
| 47 | 2.4   | 0.0024       | -0.129422173     | -0.722866109     | 0.93431641       |
| 48 | 2.5   | 0.0025       | -0.260758107     | -0.859514391     | 0.490999671      |
| 49 | 2.6   | 0.0026       | -0.379198797     | -0.981114455     | 0.057143765      |
| 50 | 2.7   | 0.0027       | -0.485791073     | -1.088809095     | -0.366546003     |
| 51 | 2.8   | 0.0028       | -0.581500185     | -1.183665427     | -0.779402838     |
| 52 | 2.9   | 0.0029       | -0.667216097     | -1.266679556     | -1.180798968     |
| 53 | 3   | 0.003        | -0.743759292     | -1.338780961     | -1.570146068     |
| 54 | 3.1   | 0.0031       | -0.811886141     | -1.400836627     | -1.946895581     |