

Math 334 (Section 2 & 3)

Homework Assignments

Homework is to be submitted on Learning Suite and can be handwritten or typed. Some homework sets have problems indicated with “M”. You can earn up to 2 bonus points in those homework sets if you include commands and graphs from Mathematica in the M problems. Make sure that graphs are accompanied by commands (codes) as an evidence that you did use Mathematica. You can simply take a screenshot of your computer screen. See the next page for an example. If you don’t use Mathematica, you can still earn full credit of the homework set but not the bonus points.

| Homework | Problems | Due Date |
|-----------------------------------|---|---|
| 1 | Sec 1.3: 1-4, 5, 11, 14, 21 | 09/03/2021 |
| 2 | Sec 1.1: 1, 5, 7(M), 11-16, 18; Sec 1.2: 1, 8, 10 | 09/07/2021 |
| 3 | Sec 2.1: 1(M), 7, 12, 18, 26; Sec 2.2: 1, 6, 20 | 09/10/2021 |
| 4 | Sec 2.2: 21ab(M); Sec 2.3: 1, 8, 9, 14ab(M) | 09/14/2021 |
| 5 | Sec 2.4: 2, 16(M), 19, 25; Sec 2.5: 8, 18, 25 | 09/17/2021 |
| 6 | Sec 2.5: 21, 22; Sec 2.6: 2, 11, 14, 17, 18 | 09/21/2021 |
| 7 | Sec 3.1: 4, 7, 14(M), 17; Sec 3.2: 10, 11 | 09/24/2021 |
| 8 | Sec 3.2: 4, 9, 23, 29, 32; Sec 3.3: 3 | 09/28/2021 |
| 9 | Sec 3.3: 6, 13(M), 18; Sec 3.4: 9, 12, 13, 23 | 10/01/2021 |
| Midterm 1 (Sec 1.1 - 3.4) | | Oct 6 -- Oct 8 |
| 10 | Sec 3.5: 12, 15, 16(M), 24 | 10/08/2021 |
| 11 | Sec 3.6: 3, 8, 10; Sec 3.7: 2, 6, 7, 20(M) | 10/12/2021 |
| 12 | Sec 3.8: 4, 7, 13; Sec 4.1: 2, 5, 11, 17 | 10/15/2021 |
| 13 | Sec 4.2: 9, 11, 20(M); Sec 4.3: 2, 5, 7 | 10/19/2021 |
| 14 | Sec 5.1: 6, 15, 18; | 10/22/2021 |
| 15 | Sec 5.2: 3, 10, 12(M), 19; Sec 5.3: 1, 5, 10 | 10/26/2021 |
| 16 | Sec 6.1: 8, 12, 16, 19, 20, 21 | 10/29/2021 |
| 17 | Sec 6.2: 3, 4, 6, 8 | 11/02/2021 |
| 18 | Sec 6.3: 4(M), 5, 14, 15; Sec 6.4: 1, 6, 11(M) | 11/05/2021 |
| Midterm 2 (Sec 3.5 - 6.4) | | Nov 10 -- Nov 12 |
| 19 | Sec 6.5: 1, 4, 11a(M) | 11/12/2021 |
| 20 | Sec 6.6: 4, 5, 8; Sec 7.1: 4, 6, 7, 19 | 11/16/2021 |
| 21 | Sec 7.3: 12, 13, 14, 19; Sec 7.2: 7a, 10, 16d, 17 | 11/19/2021 |
| 22 | Sec 7.4: 1, 5; Sec 7.5: 1(M), 5(M), 12, 23 | 11/23/2021 |
| 23 | Sec 7.6: 1(M), 5, 12(M) | 11/30/2021 |
| 24 | Sec 7.7: 4, 7, 9; Sec 7.8: 1(M), 4, 6, 9(M) | 12/03/2021 |
| 25 | Sec 7.9: 1, 2, 4, 13 | 12/07/2021 |
| Final Exam (Sec 6.5 - 7.9) | | Section 2: 11 AM – 2 PM on Thursday, 12/16/2021 at JKB 3104. Section 3: 11 AM – 2 PM on Tuesday, 12/14/2021 at JKB 3104. |

Example of an "M" problem:

Problem 2, Section 1.2:

$$a) \frac{dy}{dt} = y - 5, \quad y(0) = y_0$$

$$\rightarrow \frac{dy}{y-5} = dt$$

Integrate both sides:

$$\ln|y-5| = t+C \rightsquigarrow |y-5| = e^{t+C} \rightarrow y = 5 \pm e^{t+C} = 5 + ke^t$$

$$\text{Plug } t=0: \quad \underbrace{y(0)}_{y_0} = 5 + ke^0 = 5 + k$$

Thus, $k = y_0 - 5$. Conclusion: $y = 5 + (y_0 - 5)e^t$ (see graph below)

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In[1]:= y0 = 1;
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Plot[5 + (y0 - 5) * Exp[t], {t, -1, 1}]
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Out[2]=
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