

This is a preview of what students will see when they are submitting the assignment. Interactive features are disabled.

Assignment-2

Due: Thursday November 26, 2020 11:00 PM (Central Standard Time)

Assignment description

This assignment is due on November 26th at 11:00 pm.

No late assignments will be accepted under any circumstances. Please don't leave things until the last minute. You should anticipate possible technical difficulties (scanner not working, internet down or whatever) and plan ahead. You can always submit before the deadline.

You must write your answers in full detail in order to get marks. In other words, show your work. When in doubt, write more rather than less.

You are welcome to contact me if you need **clarification** about a question, but please don't ask me for hints. The assignment is partly a test of whether you can do things independently.

You should attach your completed honesty declaration to the solution of Question 1.

Submit your assignment

 [Help](#)

After you have completed the assignment, please save, scan, or take photos of your work and upload your files to the questions below. Crowdmark accepts PDF, JPG, and PNG file formats.

Q1 (10 points)

Let

$$A = \begin{bmatrix} 7 & -2 & -9 \\ -5 & 1 & 5 \\ 3 & -1 & -4 \end{bmatrix}$$

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(a) Find A^{-1} using the adjoint formula.

(b) Find A^{-1} using the row-operations method. You are allowed to use the LAT for your row-operations, but you need to handwrite the entire sequence of row-operations and intermediate matrices in your answer. You cannot do a copy-paste.

You should also attach your completed honesty declaration here.

Q2 (8 points)

Let

$$w = -\frac{1}{2} + i \frac{\sqrt{3}}{2}.$$

Find all the fifth roots of w . Your answers must be in exponential form using the principal values of the argument. Do not use a calculator to solve this question.

Q3 (10 points)

You will need a scientific calculator to solve this problem. We haven't done such a problem in class, so you will have to do some independent thinking in order to approach it. No hints will be given. Just put in your best effort, and explain your calculations in detail.

Let

$$w = 5 - 7i.$$

(a) Find the principal value of $\arg(w)$ to four decimal places. For example, a number such as 1.2345 is written to four decimal places.

(b) Now find all the cube-roots of w . Your answers must be in Cartesian form, accurate to four decimal places. Even when you are using a scientific calculator, explain in words exactly what you are calculating.

Q4 (12 points)

Consider the matrix

$$A = \begin{bmatrix} 1 & x & 0 \\ -2 & 4 & 9 \\ 3 & y & -1 \end{bmatrix}.$$

It is given to you that

(a) The $(2, 3)$ entry of A^{-1} is $\frac{3}{22}$.

(b) The $(3, 3)$ entry of A^{-1} is $\frac{1}{11}$.

Find the values of x, y .

Although this is slightly harder than the problems we have done in class, we have covered all the concepts necessary to solve this question.