

MTH 112

Mini Test 4

Damien Adams

Expectations

When writing your Mini Test, here is what I expect:

- Your name will be at the top-right of the first page.
- “Mini Test #” will be written at the top of the front page.
- Each prompt will begin on a new page.
- Each prompt will begin with the prompt number **as well as the statement of the prompt**. That is, full instructions for each prompt will be written before work is provided.
- If a graph is provided, that graph will be copied onto the Mini Test page.
- Graphs will have the axes labeled, have tick marks, and have a scale for what each tick represents.
- Proper mathematical notation will be used.

Grading Criteria

Homework is graded on completeness, but Mini Tests are graded on correctness and completeness. The following questions will be used to grade the Mini Test.

- Is the prompt stated at the beginning?
- Is the work algebraically correct?
- Is the reasoning clear and correct?
- Is the conclusion (your answer) clearly stated and correct?
- Did you follow the instructions (this includes units, providing an exact response if asked, or rounding appropriately when asked)?
- Ultimately, is it clear that you understand what you are doing?

Prompts

- (6) 1. Consider the point whose Cartesian coordinates are $(-4, 6)$. Plot the point on a Cartesian coordinate system (be sure to label your axes and provide a scale), and convert the point to polar coordinates given that $r > 0$ and $\theta \in [0, 2\pi)$.
- (7) 2. Find the polar form of $-4 - 4i$.
- (6) 3. Suppose $\mathbf{u} = \langle -4, 6 \rangle$ and $\mathbf{v} = -4\mathbf{i} - 4\mathbf{j}$. Find the following.
- a. $2\mathbf{u} - 3\mathbf{v}$
 - b. $\mathbf{u} \cdot \mathbf{v}$
- (6) 4. Find the exact value of $\sin\left(\frac{\pi}{12}\right)$.