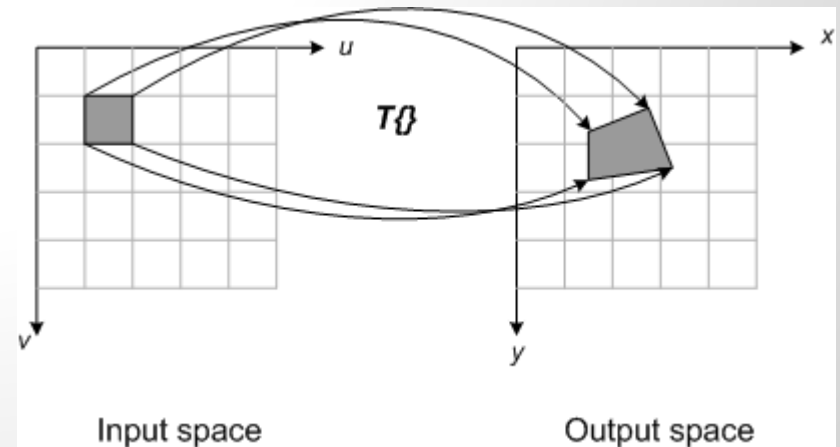


# Visualizing Complex Functions

Branden Dundey  
Paul Giacchetto  
Bradley Watson

# Review

- Mapping with Complex Numbers
  - $5 + 2i$
- Forward Mapping
  - Get the pixel location in source picture
  - Apply a function
  - Place pixel at a new location in destination picture
- Where does it fail
  - Causes whitespaces
  - Overlapping pixels
- Fix
  - Resolution



# Milestone 4

- Fix up forward mapping resolution issues
  - Output required higher resolution to look clear
  - Jagged edges needed to be fixed
- Accept user image input
- Have scalable axes
  - Add more information to line markers
- Consult a mathematician to review program

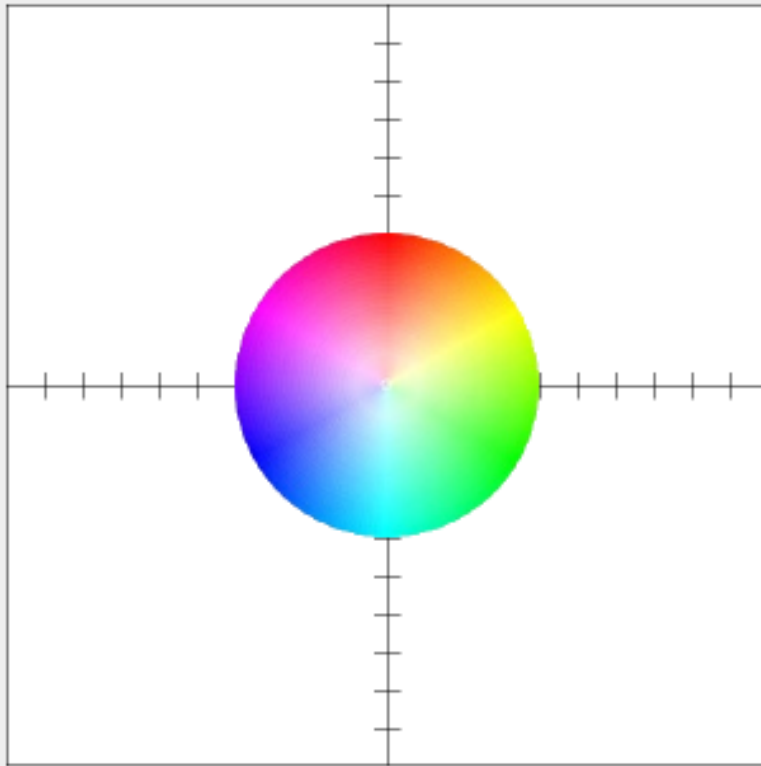
# Milestone 4 Progress

Task	% Finished	To Do
Forward Mapping Resolution	80%	Continual improvements
Accept User Input	90%	Possible improvements
Scalable Axes	100%	
Consult Mathematician	70%	Will have to review the program again

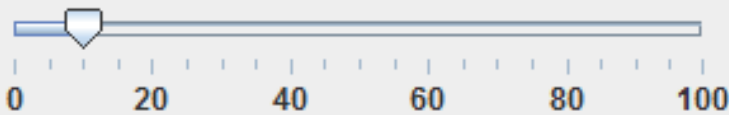
# Mathematician's Response

- **Usefulness**
  - The grid pattern makes it easy to see what a function does and how points are mapped.
- **Accuracy**
  - He needs to verify if the mapping process for a full image is correct. Issue lies with overlapping pixels.
- **Suggestions**
  - Hover over domain grid and see where that exact pixel is mapped

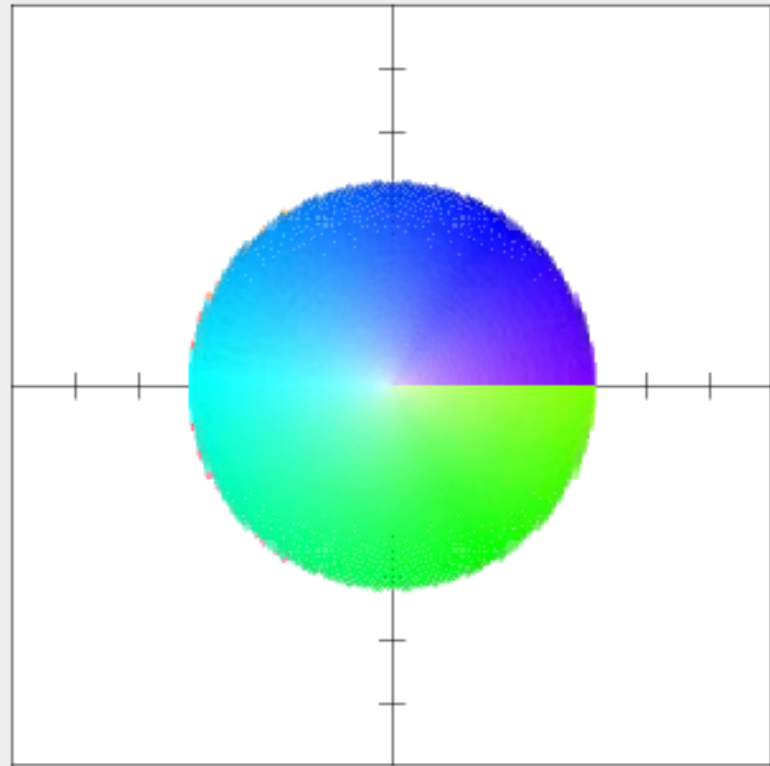
# Accuracy Example ( $w = z^2$ )



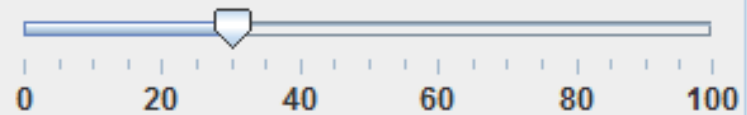
Set Domain Graph Scale



Current Value: 10



Set Range Graph Scale



Current Value: 30

# Milestone 5

- Improve error handling
  - Display that an error has occurred
  - Catch errors with user input
- Start working on website features
  - Upload applet to website
  - Add in help dialogs and descriptions
- Save images
- Fix a "Viewpoint Effect"
  - If part of the input image is not displayed on the domain grid, that missing part doesn't get mapped.
- Try to implement an "infinite" domain
- Poster

# Milestone 5 Matrix

	Paul	Branden	Bradley
Improve Error Handling	33.33%	33.33%	33.33%
Website Features	25%	50%	25%
Save Images	25%	25%	50%
Viewpoint Effect	50%	25%	25%
Infinite Domain	33.33%	33.33%	33.33%
Poster	33.33%	33.33%	33.33%



**Demo**

**Questions?**