# Test Plan

## 1. User Interface

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| **Ref.** | **Purpose** | **Test Data** | **Expected Result** | **Pass** | **Figure Ref.** |
| ***t. 1.1*** | Keyboard shortcut for toggling the plot dialog works. **Typical.** | Ctrl + P | Plot dialog is hidden. | ✓ | *fig. 1.1* |
| ***t. 1.2*** | Keyboard shortcut for showing the preferences dialog works. **Typical.** | Ctrl + , | Preferences dialog appears. | ✓ | *fig. 1.2* |
| ***t. 1.3*** | Incorrect stroke width values are bounded to range 1 – 10. **Erroneous.** | Attempt to type “20” into stroke width field. | Field stops accepting input after “2”. | ✓ | *fig. 1.3* |
| ***t. 1.4*** | Axes are not labelled when the feature is disabled in preferences. **Typical.** | Uncheck label axes checkbox. | No text labels are drawn on the axes in the main window. | ✓ | *fig. 1.4* |
| ***t. 1.5*** | The origin can be translated to any point onscreen, and the axes will update accordingly. **Typical.** | Enter coordinates (50, 100) into translation input. | The labels on the axes still start at zero, centred on the origin. | ✓ | *fig. 1.5* |
| ***t. 1.6*** | Axes cling to the edge of the screen when the origin is translated off-screen. **Boundary.** | Enter coordinates (0, 500), then (500, 0), then (500, 500) into translation input. | The real, then the imaginary, then both axes cling to the edge of the screen. The point where the axes cross is no longer labelled. | ✓ | *fig. 1.6.1 fig. 1.6.2 fig. 1.6.3* |
| ***t. 1.7*** | Labels on axes expand correctly on zooming. **Typical.** | Increase zoom level. | The labels on the axes expand | ✓ | *fig. 1.7* |
| ***t. 1.8*** | The level of detail of the axis labelling increases with zoom. **Typical.** | Increase zoom level further. | New labels appear in between the existing labels on the axes. | ✓ | *fig. 1.8* |

## 2. Loci

### 2.1 Circles and Disks

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| ***t. 2.1.1*** | Circles with simple radii are drawn correctly. **Typical.** |  | A circle of radius 100 is drawn. | ✓ | *fig. 2.1.1* |
| ***t. 2.1.2*** | Circles with complex radii are not drawn. **Erroneous.** |  | The equation is accepted, but nothing is drawn. | ✓ | *fig. 2.1.1* |
| ***t. 2.1.3*** | Circles with radius 0 are drawn as a point. **Boundary.** |  | A point at the origin is drawn. | ✓ | *fig. 2.1.1* |
| ***t. 2.1.4*** | Circles with negative radii are not drawn. **Erroneous.** |  | The equation is accepted, but nothing is drawn. | ✓ | *fig. 2.1.1* |
| ***t. 2.1.5*** | Circles with offsets are correctly drawn in all quadrants. **Typical.** |  | Four separate circles are drawn, centred on 50, -50, 50j and -50j. | ✓ | *fig. 2.1.2* |
| ***t. 2.1.6*** | *‘Less than’* disks are shaded correctly with a dashed line. **Typical.** |  | A shaded disk with a radius 100 and a dashed edge is drawn. | ✓ | *fig. 2.1.3* |
| ***t. 2.1.7*** | *‘Less than or equal to’* disks are shaded correctly with a solid line. **Typical.** |  | A shaded disk with a radius 50 and a solid edge is drawn. | ✓ | *fig. 2.1.3* |
| ***t. 2.1.8*** | *‘More than’* negative disks are shaded correctly with a dashed line. **Typical.** |  | The entire screen is shaded apart from a disk with radius 150 and a dashed edge. | ✓ | *fig. 2.1.3* |
| ***t. 2.1.9*** | *‘More than or equal to’* disks are shaded correctly with a solid line. **Typical.** |  | The entire screen is shaded apart from a disk with radius 200 and a solid edge. | ✓ | *fig. 2.1.3* |

### 2.2 Lines and Half-Planes

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| ***t. 2.2.1*** | Perpendicular bisectors with real gradients are drawn correctly. **Typical.** |  | The line is drawn. | ✓ | *fig. 2.2.1* |
| ***t. 2.2.2*** | Vertical bisectors are drawn correctly. **Boundary.** |  | The line is drawn. | ✓ | *fig. 2.2.1* |
| ***t. 2.2.3*** | Horizontal bisectors are drawn correctly. **Boundary.** |  | The line is drawn. | ✓ | *fig. 2.2.1* |
| ***t. 2.2.4*** | *‘More/less than’ h*alf-planes are drawn correctly. **Typical.** |  | The areas above the line (see ***t. 2.2.1***), and the line are shaded, both with a dashed edge. | ✓ | *fig. 2.2.2* |
| ***t. 2.2.4*** | *‘More/less than or equal to’* half-planes are drawn correctly. **Typical.** |  | The areas above the line (see ***t. 2.2.1***), and the line are shaded, both with a solid edge. | ✓ | *fig. 2.2.3* |
| ***t. 2.2.5*** | Lines are not accepted where both sides of the equation are equal. **Erroneous.** |  | The equation input remains red, and nothing is drawn. | ✓ | *fig. 2.2.4 fig. 2.2.5* |

### 2.3 RayS

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| ***t. 2.3.1*** | Rays from the origin are drawn correctly in all quadrants. **Typical.** |  | Rays are drawn from the origin with arguments of , , , and from the positive real axis. | ✓ | *fig. 2.3.1* |
| ***t. 2.3.2*** | Rays with offsets are drawn correctly. **Typical.** |  | A horizontal ray is drawn from in the positive real direction, a vertical ray is drawn from 50 in the positive imaginary direction, and a ray is drawn from the intersection point with an argument of . | ✓ | *fig. 2.3.2* |

### 2.4 Points

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| ***t. 2.4.1*** | Simple points are plotted correctly in all quadrants. **Typical.** |  | Points are drawn at , , , and . | ✓ | *fig. 2.4.1* |
| ***t. 2.4.2*** | Simple points are plotted correctly on axes. **Boundary.** |  | Points are drawn at , , , and . | ✓ | *fig. 2.4.2* |
| ***t. 2.4.3*** | The parser can plot points from more complex inputs. **Typical.** |  | Points are drawn at , and . | ✓ | *fig. 2.4.3* |
| ***t. 2.4.4*** | Points are labelled when enabled in preferences. **Typical.** | “Label points.” enabled in preferences. | The point is labelled with the text “50+50j”. | ✓ | *fig. 2.4.4* |

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| *fig. 1.5* |  |
| *fig. 1.6.1* |  |
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| *fig. 1.6.3* |  |
| *fig. 1.7* |  |
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| *fig. 2.4.3* |  |
| *fig. 2.4.4* |  |