From the graph of the matrix A where its determinant is compared with its trace, the shape of the scatterplot tells a lot of information about how then power method works. The graph appears to model the equation x = y2/4 where every point surrounds this line, but uses this equation as an asymptote that it never crosses. Regarding the relationship between the position of a matrix on the plot and and the number of iterations needed in the power method, it is observed that the matrices that needed less than 10 iterations (red data points) are focused more closely to the line x = y2/4 and they occur mostly in the region of -2 < x < 2 and -3 < y < 3. The matrices that needed between 10 and 20 iterations (orange data points) are mostly located directly behind the red hovering around y = 0, with some appearing on the outer part of x = y2/4 near x = 1. As the iterations get closer to 100, the data points converge to y = 0 and are mostly between -5 <= x <= -1. The reasons for this shape and where the data points are located in relation to the number of iterations is that the closer the determinant of the matrix is to 0, then the fewest iterations are required to find the largest eigenvalue whereas the closer the trace is to 0, then the most iterations are required to find the largest eigenvalue. These two properties are due to the fact that as the determinant becomes more negative, the trace is closer to 0 and more iterations are required because the power method cannot compute the eigenvector with sufficient accuracy with the determinant not being close to 0. Because each elements of the matrix is on the range [-2,2], then the trace has to be on the range [-4,4] and the determinant hovers closely around this range, but is not absolutely tied down to following these limits, thus the few points where the determinant is less than -4.

For the graph of A-inverse where its determinant and trace are plotted, the graph has a much different shape because the trace of A-inverse is equal to the trace of A divided by the determinant of A. This is proven because in the equation where A is converted to its inverse, a and d switch positions so the trace would stay the same between both plots, except for the fact that for the inverse, each element after it has been swapped or made negative is divided by the determinant of A. The shape of the graph appears to a horizontal hyperbola where on the positive-x side, the points do not cross the line of the hyperbola. However, on the negative-x side, the hyperbola is less defined with points scattered on the inside of the hyperbola. As can be seen from the colors of the points based on the number of iterations, the inverse matrices that do not require many iterations are found close to the lines of the hyperbolas whereas the inverse matrices that do require more iterations are found closer to the line y = 0 like in the previous graph, and the determinant of these matrices that require more iterations is mostly negative. The reason for the shape of this graph comes from dividing each element of the inverse matrix by the determinant of A as was proven earlier. This results in this hyperbola-like scatterplot. The reason that the matrices with larger iterations are closer to y-0 is the same as in the non-inverse matrix graph, which is because the trace is closer to 0, and thus the power method requires more iterations to determine an accurate eigenvalue. The matrices that required fewer iterations are found all over the graph close to the hyperbola bounds because taking the inverse of the previous matrix can give large determinants (in magnitude from 0) and the traces can also be large value based on what they were in the normal matrix.