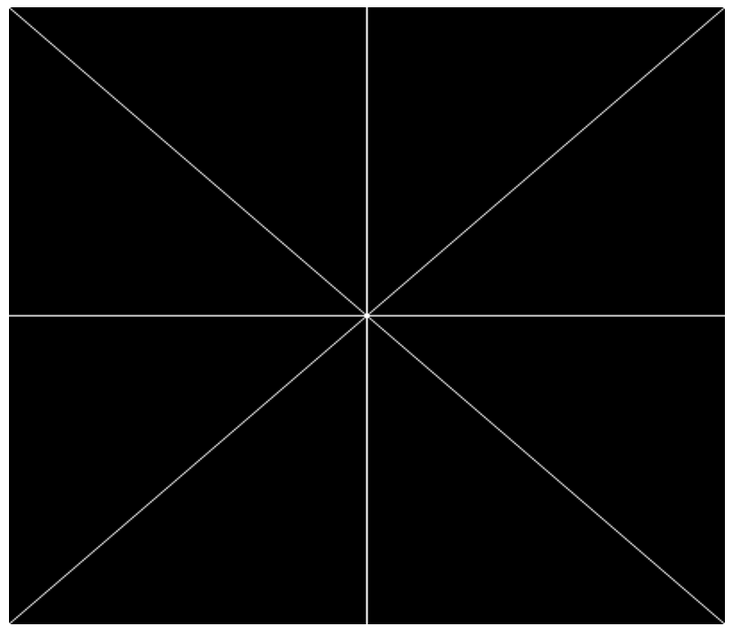
BME-200 2014 Exam 1

1. Start with clear all, x=99:0.001:101; a=1; b=1; c=2; d=4.2639458779238964; f=0.001;
   Then, compute y $$y = a\sqrt{b\left|c\tan\left(d\,e^{fx}\right)\right|}$$



2. (continue 1) At maximum y(x), what are the values of x & y?
3. (continue 2) Round the maximum y to the nearest million.
4. (continue 1) Plot y vs x with a green curve with line width of 2. No axis labels necessary.
5. x+y+z=10, x+2y+3z=10, 3x+2y+2z=10
   Using matrix equation, solve for s=x+y+z. Display s.
6. Start with clear all, k=0:2222; h=k/13;
   Use a for-end loop to count the integer values in h.
7. Repeat problem 6 without using for-end or if-end.
8. For $x = t^2 e^{-1.5t}$ and 0 ≤ t ≤ 7 seconds, find y(n) = 40 x(n+1) - 40 x(n-1)
9. (continue 8) Plot x vs t and y vs t on the same axis. Use a font size of 14, line width of 2, and add grid. Label axes, and use legend.
10. Start with clear all, x=rand(1,1e3);
    Continue code to count & display the number of elements in x that are greater than the sum of the two previous values. {Example: In x=[1,2,4], 4 is greater than 1+2.}
11. Start with clear all, x=rand(1,1e3);
    Find the two largest values in x.
12. Starting with clear all, a=zeros(401,401), create the image in upper right.
    Use truesize.