1. **plot**

   Write a small script m-file **Tut4Q1.m** that plots the graph of

   $$y = e^{|x|} + \sqrt{5+x}\left(\frac{3}{2}\right)^{-x} \qquad \text{in the interval} \qquad -4 \le x \le 3,$$

   using enough data points to produce a smooth curve.

2. **grid, LineWidth, FontSize**

   Copy **Tut4Q1.m** into **Tut4Q2.m** and perform the following modifications:

   - Turn on the grid lines,
   - Increase the line thickness to **2**,
   - Add a title and axis labels, use a font size of **20** for each.

3. **Several plots together:**

   Copy **Tut4Q2.m** into **Tut4Q3.m** so that it plots the three diagrams: *ExpCurve, XL & XR*, described below, on the same graph using a single plot command. *Use vectors of length 100 to plot the curve and vectors of length 40 to plot the vertical lines.*

   - The curve : ExpCurve $= e^{|x|} + \sqrt{5+x}\left(\frac{3}{2}\right)^{-x}$ in $-4 \le x \le 3$
   - The vertical line : XL $= -3.5$ from the $x$-axis to *ExpCurve*.
   - The vertical line : XR $= 2.5$ from the $x$-axis to *ExpCurve*.

4. **Holding a plot:**

   *Alternatively, you could first plot one curve, then tell MATLAB to hold it using* ***hold on****, then plot the second curve etc. After plotting the last curve you then type* ***hold off****.*

   Copy **Tut4Q3.m** into **Tut4Q4.m** so that it plots the three graphs given in item 3. above on the same graph using three plot commands and hold on/off.

5. **Line Type and Colour:**

   *Notice that holding a graph makes all curves the same colour, while plotting several curves with one plot command makes the colours different.*

Modify **Tut4Q4.m** so that:

- The curve, ExpCurve, is drawn as a red dotted line with a plus sign at each data point
- The line, XL, is drawn as a green broken line
- The line, XR, is drawn as a black solid line
- Use a line thickness of **2** for ExpCurve and line thicknesses of **3** for both XL and XR

6. **subplot:**

*In this question, you are expected to use **subplot** commands to produce three graphs on the same window. In particular you are required to produce both of the possible arrangements of the graphs:*

- The graph of $f_1(x) = e^{-x}\sin(x) \quad 0 \leq x \leq 4$,
- The graph of $f_2(x) = x^2\cos(x) \quad 0 \leq x \leq 4$,
- The graph of $f_3(x) = f_1 + f_2 \quad 0 \leq x \leq 4$,

(i) the 3 graphs aligned into one column and

(ii) the 3 graphs in a single row.