Example of using LATEX for problem set solutions

1. *I would often have the original question restated here in italics.*

   Then my response would appear here. Assume in this case that I was asked about a heat equation. In LATEX the equation can be nicely displayed like

   $$u_t(x,t) = \nu u_{xx}(x,t)$$
   $$u(x,0) = u_0(x).$$

2. *We might also have need to submit plots and code. For example, suppose we were asked to plot* $\sinh(x)$ *and* $\cosh(x)$ *for* $x \in [-\pi, \pi]$.

   The requested plot is given in Figure 1, and the MATLAB code to produce this is given in Listing 1.
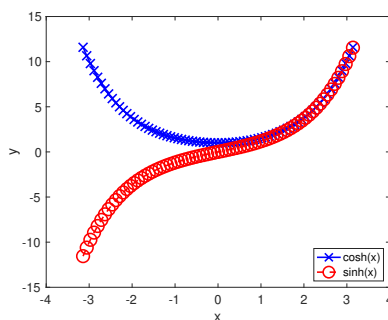

Figure 1: Example plot of $\sinh(x)$ and $\cosh(x)$.

Listing 1: Example code

```
1  clear all
2  fs = 16; % font size
3  lw = 2; % line wideth blah
4  ms = 16; % marker size
5
6  m  = 75;
7  x  = linspace(-pi,pi,m);
8  y1 = cosh(x);
9  y2 = sinh(x);
10
11 figure
12 plot( x,y1,'bx-', 'lineWidth',lw, 'MarkerSize',ms );
13 hold on
14 plot( x,y2,'ro--', 'lineWidth',lw, 'MarkerSize',ms );
15 hold off
16 xlabel( 'x' );
17 ylabel( 'y' );
18 legend( 'cosh(x)','sinh(x)', 'Location','SouthEast' );
19 set(gca,'FontSize',fs);
20 plotName = sprintf('images/plotExample.eps');
21 fprintf('Saving␣file=[%s]\n',plotName);
22 print('-depsc2',plotName);
```