Solution to Homework 3
(your name here)
February 25, 2015

1   Python's built in documentation

Here's how to get Python to display built in documentation

```
Cut demonstration from a command window, paste it here.
```

I figured this out by .... The website `http://www.cs.umb.edu/~eb/480/hw03/hw03.html`
helped.

2   Eulerphi

Here's my test of the `eulerphi()` function:

```
myshell> python eulerphi.py
eulerphi returned ['passed', 100, 'nothing useful yet']
```

Along the way, I learned these things about Python:

- something surprising

- something else

-

Here's the code:

```python
1  def eulerphi( b=100 ):
2      """ Given a positive integer b,
3      returns a list of the integers between 1 and b
4      that are relatively prime to b.
5
6      For example, eulerphi(15) returns the list
7          [1,2,4,7,8,11,13,14]
8
9      Use the function gcd from the fractions library.
10      """
11      return ["passed", b, "nothing useful yet"]
12
13  print("eulerphi returned " + str(eulerphi()))
```

3   Primes less than b

We did this in class, several ways. Here's the solution I like best, because ...

4   Faster fsf

Here is the LaTeX source for this document. You can cut it from the pdf and use it to start your answers. I used the \jobname macro for the source file name, so you can call your file by any name you like.

```
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%
% template for hw3 solution
% Math 480 Spring 2015
%
% No need to read or understand anything before the comment line below
% marked
% %%%%%%%%%%%%%%% start here %%%%%%%%%%%%%%%%

\documentclass[10pt]{article}
\usepackage[textheight=10in]{geometry}

\usepackage{verbatim}
\usepackage{amsmath}
\usepackage{amsfonts} % to get \mathbb letters

\usepackage[utf8]{inputenc}
\DeclareFixedFont{\ttb}{T1}{txtt}{bx}{n}{9} % for bold
\DeclareFixedFont{\ttm}{T1}{txtt}{m}{n}{9}  % for normal
% Defining colors
\usepackage{color}
\definecolor{deepblue}{rgb}{0,0,0.5}
\definecolor{deepred}{rgb}{0.6,0,0}
\definecolor{deepgreen}{rgb}{0,0.5,0}

\usepackage{listings}

%Python style from
%http://tex.stackexchange.com/questions/199375/problem-with-listings-package-for-python-syntax-color
\newcommand\pythonstyle{\lstset{
  language=Python,
  backgroundcolor=\color{white}, %%%%%%
  basicstyle=\ttm,
  keywordstyle=\ttb\color{deepblue},
  emph={MyClass,__init__},
  emphstyle=\ttb\color{deepred},
  stringstyle=\color{deepgreen},
  commentstyle=\color{red},  %%%%%%%%
  frame=tb,
  showstringspaces=false,
  numbers=left,numberstyle=\tiny,numbersep =5pt
}}

%On my computer on just this one file I get a weird error when
%using the hyperref package. You should be able to comment in
%this line and use it in your document to create links.
%
%\usepackage{hyperref}

\begin{document}

\pythonstyle{}

%%%%%%%%%%%%%%%% start here %%%%%%%%%%%%%%%%
\begin{center}
\Large{
Solution to Homework 3 \\
```

```
(your name here) \\
\today
}
\end{center}

\section{Python's built in documentation}

Here's how to get Python to display built in documentation


\begin{verbatim}
Cut demonstration from a command window, paste it here.
\end{verbatim}

I figured this out by \dots. The website
\verb!http://www.cs.umb.edu/~eb/480/hw03/hw03.html! helped.
% See comment above about the hyperref package
%\url{http://www.cs.umb.edu/~eb/480/hw03/hw03.html} helped.

\section{Eulerphi}

Here's my test of the \lstinline!eulerphi()! function:

\begin{verbatim}
myshell> python eulerphi.py
eulerphi returned ['passed', 100, 'nothing useful yet']
\end{verbatim}

Along the way, I learned these things about Python:

\begin{itemize}
\item something surprising
\item something else
\item
\end{itemize}

Here's the code:

\lstinputlisting{eulerphi.py}

\section{Primes less than b }

We did this in class, several ways. Here's the solution I like best,
because \dots

\section{Faster fsf}

\newpage
\emph{
Here is the \LaTeX{} source for this document. You can cut it from the
pdf and use it to start your answers. I used the} \verb!\jobname!
\emph{macro for the source file name, so you can call your file by any
  name you like.}
\verbatiminput{\jobname}

\end{document}
```