Math 115 Fall, 2011

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Assignment due September 1, 2011

Problems beginning on page 17 of the textbook: 1ad, 2, 3ae, 4, 5, 6, 7, 11, 19, 25, 32, 46, 47

Using sage, redo problems 1ad, 2, 3ae and 4 and experiment for yourself by exploring examples with much larger numbers. (You don’t have to turn anything in; the aim is for you to start learning sage.)

If you are unsure how to use a command, enter the command name followed by a question mark (or use google).

Some relevant and/or interesting sage commands:

\texttt{gcd}: greatest common divisor

\texttt{xgcd}: extended gcd, does problems like #2.

\texttt{lcm}: least common multiple

\texttt{factor}: factors integers, even big ones!

\texttt{prime\_range}(a,b): outputs a list of primes between \texttt{a} and \texttt{b}

\texttt{is\_prime}(): tells you whether or not a number is prime, e.g., \texttt{5.is\_prime()} yields “true.”

\texttt{prime\_pi}(n): outputs the number of primes \leq n.