1. [2 pts] Find two fractions that are equivalent to \(\frac{30}{111}\) and whose denominators are each strictly between 6500 and 6600. Show clear work, but you need not explain.

\[
\frac{30}{111} \times \frac{59}{59} = \frac{1770}{6549}
\]
certainly works. To find others, we ought to reduce the original fraction to lowest terms: \(\frac{10}{37}\). If we multiply this one by any whole number beginning with 176 up to and including 178, we get appropriate answers (including the first one again). Here are all the possibilities:

\[
\frac{1760}{6512}, \quad \frac{1770}{6549}, \quad \frac{1780}{6586}.
\]

2. [1 pt] Find a fraction that is between \(\frac{71}{90}\) and \(\frac{7}{9}\). Show work, using correct notation. (Merely compute such a fraction; you need not explain why it falls between.)

The mediant of \(\frac{71}{90} + \frac{7}{9}\) is easiest. It’s also possible to use a common denominator (810 is useful): \(\frac{71}{90} \times \frac{2}{2} = \frac{639}{810}\) and \(\frac{7}{9} \times \frac{90}{90} = \frac{630}{810}\), so choose ANY numerator between 630 and 639 but keep the denominator of 810. Correct answers are:

\[
\frac{631}{810}, \quad \frac{632}{810}, \quad \ldots, \quad \frac{638}{810}.
\]

3. [2 pts] Without converting to decimals, use any meaningful technique(s) to determine which of these three fractions is largest, showing clear work or verbal explanation:

\[
\frac{6}{7}, \quad \frac{71}{60}, \quad \frac{7}{6}.
\]
Be sure to indicate your answer.

Many approaches are correct. Here’s one solution:

It can’t be \(\frac{6}{7}\) that’s largest, because it’s less than 1 while the other two are more than 1. I could cross-multiply them to finish, but I’d rather rewrite \(\frac{7}{6}\) as \(\frac{70}{60}\) and then observe that this new fraction and the \(\frac{71}{60}\) are keeping the same size pieces, but \(\frac{71}{60}\) keeps more of them. That makes \(\frac{71}{60}\) the largest.