1. [2 pts] Find two fractions that are equivalent to 55/132 and whose denominators are each strictly between 6700 and 6750. Show clear work, but you need not explain.

\[
\frac{55}{132} \times \frac{51}{51} = \frac{2805}{6732}
\]
certainly works. To find others, we ought to reduce the original fraction to lowest terms: \(\frac{5}{12}\). If we multiply this one by any whole number beginning with 559 up to and including 562, we get appropriate answers (including the first one again). Here are all the possibilities:

\[
\begin{align*}
\frac{2795}{6708}, & \quad \frac{2800}{6720}, \quad \frac{2805}{6732}, \quad \frac{2810}{6744}.
\end{align*}
\]

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

The mediant of \(\frac{71+9}{90+7} = \frac{80}{97}\) is easiest. It’s also possible to use a common denominator (630 is useful); \(\frac{71}{90} \times \frac{7}{7} = \frac{497}{630}\) and \(\frac{9}{7} \times \frac{90}{90} = \frac{810}{630}\), so choose ANY numerator between 497 and 810 but keep the denominator of 630. Correct answers are:

\[
\begin{align*}
\frac{498}{630}, & \quad \frac{499}{630}, \quad \cdots, \quad \frac{809}{630}.
\end{align*}
\]

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

\[
\frac{6}{7}, \quad \frac{7}{6}, \quad \frac{60}{71}.
\]

Be sure to indicate your answer.

Many approaches are correct. Here’s one solution:

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