9. [10 pts] If one red Fraction Tile represents \( \frac{3}{4} \) of a whole, tell what tiles could represent the fraction \( \frac{1}{2} \). Explain your reasoning in a few sentences.

The red is made of 3 pieces that were kept; that's 3 pinks. So each pink is worth \( \frac{1}{4} \).

The whole is made of 4 fourths, so 4 pinks. That's an orange. One orange is the whole.

Now find \( \frac{1}{2} \) by splitting the orange into 2 same-size pieces and keeping 1. You end up keeping 1 blue, so 1 blue is \( \frac{1}{2} \).

For \( \frac{1}{2} \), keep 5 blue.

10. [10 pts] Draw and label a diagram to compute \( \frac{3}{4} + \frac{5}{6} \) without predetermining a common denominator. Explain how the final numerator and denominator are each determined from your diagram.

\[
\begin{array}{c|c|c}
\hline
\text{3/4} & + & \text{5/6} \\
\hline
\end{array}
\]

\[
\text{38 \over 24}
\]

We keep 38 pieces. (the numerator)

There are 24 pieces in one whole. (the denominator)

11. [5 pts] Demonstrate thorough precancelling in the following computation so that its answer is immediately in lowest terms:

\[
\frac{12}{25} \times \frac{10}{49} \div \frac{8}{21}
\]

\[
\frac{12^3}{25^3} \cdot \frac{10}{49} \cdot \frac{21^3}{8} = \frac{9}{35}
\]