1. Solve. Draw a rectangular fraction model to explain your thinking. Then, write a number sentence. An example has been done for you.

Example:
\[
\frac{1}{2} \text{ of } \frac{2}{5} = \frac{1}{2} \text{ of } 2 \text{ fifths} = 1 \text{ fifth}
\]

\[
\frac{1}{2} \times \frac{2}{5} = \frac{2}{10} = \frac{1}{5}
\]

a. \(\frac{1}{3}\) of \(\frac{3}{4}\) of \(3\) fourths = \(\frac{1}{4}\) fourth 

b. \(\frac{1}{2}\) of \(\frac{4}{5}\) = \(\frac{1}{2}\) of \(4\) fifths = \(2\) fifths

c. \(\frac{2}{3}\) of \(\frac{1}{2}\) =

d. \(\frac{2}{3}\) of \(\frac{1}{2}\) =

e. \(\frac{1}{2}\) \times \(\frac{3}{5}\) = \(\frac{3}{10}\)

f. \(\frac{2}{3}\) \times \(\frac{1}{4}\) = \(\frac{2}{12} = \frac{1}{6}\)
2. \( \frac{5}{8} \) of the songs on Harrison's music player are hip-hop. \( \frac{1}{3} \) of the remaining songs are rhythm and blues. What fraction of all the songs are rhythm and blues? Use a tape diagram to solve.

songs

\[ \text{Remaining} \]

3. Three-fifths of the students in a room are girls. One-third of the girls have blond hair. One-half of the boys have brown hair.

a. What fraction of all the students are girls with blond hair?

students

\[ \text{bl} \]

\text{bk}

\[ \text{girls} \]

\text{boys}

Of all students, \( \frac{1}{5} \) are girls with blond hair.

b. What fraction of all the students are boys without brown hair?

Of all students, \( \frac{1}{5} \) are boys without brown hair.

4. Cody and Sam mowed the yard on Saturday. Dad told Cody to mow \( \frac{1}{4} \) of the yard. He told Sam to mow \( \frac{1}{3} \) of the remainder of the yard. Dad paid each of the boys an equal amount. Sam said, "Dad, that's not fair! I had to mow one-third and Cody only mowed one-fourth!" Explain to Sam the error in his thinking. Draw a picture to support your reasoning.

They each mowed \( \frac{3}{12} \) of the yard. Sam didn't mow \( \frac{1}{3} \) of the yard. He mowed \( \frac{1}{3} \) of the \( \frac{3}{4} \) remaining of the yard, and \( \frac{1}{3} \times \frac{3}{4} = \frac{3}{12} \). \( \frac{1}{4} \) broken into twelfths is also \( \frac{3}{12} \). They are equal.