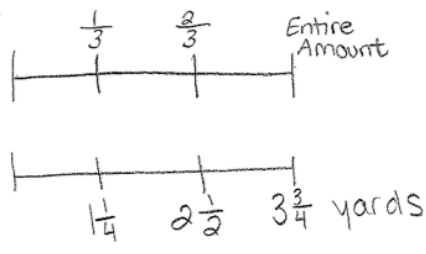1. I bought 10 yards of fabric. My sister uses $\frac{1}{4}$ of my fabric for a project. How many yards of fabric did she use?

Student Work	Student Explanation
$\frac{1}{4_2} \cdot \frac{\overset{5}{\cancel{10}}}{1} = \frac{5}{2} = \boxed{2\frac{1}{2}}$	"Take ¼ of 10."
$\begin{array}{r} 10 \\ \times\ .25 \\ \hline 50 \\ 200 \\ \hline 2.50 \text{ yards} \end{array}$	"Change the fraction into a decimal. Take 10 times ¼, or 0.25 to find out how much."
$\begin{array}{r} 2.5 \\ 4\overline{)10.0} \\ -8 \\ \hline 2\ 0 \\ 0 \end{array}$ ⟨2.5 yards of fabric⟩	"Take the amount of fabric divided by four because you want to know how much she took. So you want to find ¼ of it."
number line diagram: top marks $\frac{1}{4}$, $\frac{1}{2}$, "All the Fabric"; bottom marks $2\frac{1}{2}$, 5, 10 yards	"Use a number line and put ten at the top and divide it into four groups because you want ¼. So ¼ is 2½."

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2. My sister used $2\frac{1}{2}$ yards of my fabric for a project. This was $\frac{2}{3}$ of my fabric. How much fabric did I have at the start?

Student Work	Student Explanation
$2\overline{)2.5}$ $\frac{1.25}{}$ $1.25 \times 3 = 3.75$ 3.75 yards	"The sister used 2/3 of the fabric and she used 2½ yards. Divide 2½ by 2 to get 1/3 of the fabric. Then multiply by 3 to get the start number."
$\frac{\frac{2}{3}n}{\frac{2}{3}} = \frac{2\frac{1}{2}}{\frac{2}{3}}$ $2\frac{1}{2} = \frac{5}{2}$ $\frac{5}{2} \div \frac{2}{3}$ $\frac{5}{2} \times \frac{3}{2} = \frac{15}{4}$ $n = 3\frac{3}{4}$ yards	"Take 5/2 or 2½ and divide by 2/3 because that's actually multiplying by 3/2 or 1½, which is what you do to get the start number."
$\frac{1}{3}$ $\frac{2}{3}$ Entire Amount ├──┼──┼──┤ ├──┼──┼──┤ $1\frac{1}{4}$ $2\frac{1}{2}$ $3\frac{3}{4}$ yards	"This shows that 2 ½ is 2/3 of the fabric."
$2\frac{1}{2} \div 2 = 1\frac{1}{4}$ $2\frac{1}{2} + 1\frac{1}{4}$ $2\frac{2}{4} + 1\frac{1}{4} = \boxed{3\frac{3}{4}}$	"First find how much 1/3 of the fabric was. Then add that 1/3 to the original amount to find how much she had at the beginning."

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PROBLEM SOLVED

MAKING SENSE OF MATHEMATICS

3. I bought 6 yards of fabric. My sister used $1\frac{1}{2}$ yards of my fabric. What fraction of my fabric did she use?

Student Work	Student Explanation
	"Divide the total yards by the number of yards used to see the fraction used."
	"Take 1½ + 1½ until it reaches 6. You have to add it four times before it reaches 6 so the answer is ¼."
	"Split the fabric into fourths."
	"Split the 6 yards into groups of 1½ and there are 4 groups. So the answer is ¼."

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