

Designing and Using Problems to Teach Mathematical Knowledge for Teaching

Examples of SCK Tasks

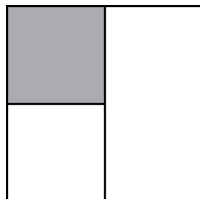
SCK Task #1: Writing division story problems

$$38 \div 4$$

Write as many different stories as you can that correspond to this division expression, representing different interpretations of the meaning of division, and with different possible numerical answers, depending on the context.

SCK Task #2: Analyzing solutions

What fraction is represented here?



What reasoning could produce each of these answers? $\frac{1}{2}$ $\frac{1}{4}$ $\frac{1}{3}$ $1\frac{1}{2}$



SCK Task #3: Analyzing errors

For each problem below:

- Do the problem correctly and explain the procedure you use and why it works.
- What mathematical steps likely produced each incorrect answer?

$$\begin{array}{r} 42 \\ \times 83 \\ \hline 326 \end{array}$$

$$\begin{array}{r} 24 \\ \times 53 \\ \hline 72 \\ \hline 120 \\ \hline 192 \end{array}$$

$$\begin{array}{r} 3.4 \\ \times 2.4 \\ \hline 136 \\ \hline 680 \\ \hline 81.6 \end{array}$$

$$\begin{array}{r} 283 \\ \times \quad 4 \\ \hline 2062 \end{array}$$