

PAINTING NHL ARENAS

OPERATION Q Divide fractions using models and symbols

Sample 3

Similarly, this student used a common denominator of tenths and multiplies the amount of paint for each arena by 6 to determine if he has enough. He realizes that $\frac{25}{10}$ is $\frac{1}{10}$ more than $\frac{24}{10}$. It would be interesting to ask this student what his solution of $\frac{1}{10}$ represents to ensure that they understand that it is $\frac{1}{10}$ of a can rather than of the total paint.

Handwritten student work for Sample 3:

① Your Paint $\frac{25}{10}$

$1 \times 5 = 5$ $\frac{20}{10} + \frac{5}{10} = \frac{25}{10}$ $2 \times 2 = 4$
 $2 \times 5 = \frac{10}{10}$ $\frac{20}{10} + \frac{5}{10} = \frac{25}{10}$ $5 \times 2 = \frac{10}{10}$

$25 = \frac{20}{10}$ Whole

② to Paint blue lines $\frac{4}{10}$

③ All rink blue lines

$6 \times \frac{4}{10} = \frac{24}{10}$ total amount of Paint needed for all blue lines.

↑ amount of rinks ↑ Paint for blue lines

④ You have $\frac{25}{10}$ it takes $\frac{24}{10}$ to paint

$\frac{25}{10} - \frac{24}{10} = \frac{1}{10}$ Paint left over

⑤ Yes, you have enough paint to paint all the rink's blue lines, you will have $\frac{1}{10}$ paint left.

Sample 4

This student solved the problem using an algorithm and went on to correctly determine what the remainder meant (i.e., $\frac{1}{4}$ of an arena multiplied by $\frac{2}{5}$ of a can equals $\frac{1}{10}$ of a can). However, many students would think the $\frac{1}{4}$ represented the amount of paint left in the can, in which case the use of a model aids in understanding the proper unit for the remainder.

Handwritten student work for Sample 4:

②

$\frac{2}{5} \times 6 \text{ rinks} = \frac{12}{5}$ or $2 \frac{2}{5}$ ← cans of paint it takes

$2 \frac{1}{2} \div \frac{2}{5} = \frac{5}{2} \times \frac{5}{2} = \frac{25}{4}$ or $6 \frac{1}{4}$ ← is the amount of rinks that I would be able to paint with the paint I have

to be redone)