

# BOTTLING MAPLE SYRUP

**OPERATION P** Divide a fraction by an unlike-denominator fraction with a non-whole number remainder

## Sample 3

Handwritten student work for the problem "BOTTLING MAPLE SYRUP". The student is solving the problem: "3  $\frac{3}{8}$  into bottles that hold  $\frac{3}{4}$ ".

The student's work includes the following steps and calculations:

- Diagram of four bottles. The first three bottles are each divided into 8 equal parts, with 3 parts shaded in each. The fourth bottle is divided into 8 equal parts, with 3 parts shaded in the bottom section.
- Below the first bottle:  $1000$  mL
- Below the fourth bottle:  $\frac{3}{8}$
- Calculation:  $\frac{1}{8} = 125 \text{ mL}$
- Calculation:  $125 \text{ mL} \times 3 = 375 \text{ mL}$
- Calculation:  $1000 \text{ mL} \times 3 = 3000 \text{ mL}$
- Calculation:  $3000 \text{ mL} + 375 \text{ mL} = 3375 \text{ mL}$
- Calculation:  $3375 \text{ mL} \div 750 \text{ mL} = 4.5$
- Interpretation: An arrow points from the ".5" in the result to the text "How many bottles get filled".
- Conclusion: "500 mL left"

Additional notes on the right side of the work:

- $\frac{3}{4} = 750 \text{ mL}$
- A smiley face drawing in the top right corner.

This student converts the fractions to whole number volume measures, correctly determining that the total volume of maple syrup is 3375 ml and that a bottle holds 750 ml. They use these values to determine that it is 4.5 bottles but misinterpret the meaning of the .5 remainder to be 500 ml rather than half a bottle. Encouraging the student to revisit their model and visually represent the pouring into the smaller bottles may help with the meaning of the remainder.