Problem of the Week
Problem B and Solution
Orange You Glad?

Problem

Betsy is shopping for orange juice. She has discovered that it comes in a variety of containers at different prices.

- At one store, a $2.63\,L$ container of orange juice costs \$4.00, and a pack of eight $200\,mL$ orange juice boxes costs \$2.64.

- At another store, $2\,L$ of orange juice costs \$3.59.

- At both stores, concentrated orange juice in a $295\,mL$ can costs \$1.71. (This must be mixed with three cans of water to obtain $4 \times 295 = 1180\,mL$ of drinkable juice.)

Which purchase will give Betsy the best value for her money?

Solution

The 2.63 L container of orange juice costs $\$4.00 \div 2.63 \approx \$1.521$ per litre. Since 100 mL is $\frac{1}{10}$ of a litre, the cost is approximately $\$1.521 \div 10 = \$0.1521$ or 15.2¢ per 100 mL.

The 8-pack costs \$2.64 for $1600\,mL$, or $\$2.64 \div 1600 = \$0.00165$ per mL.
This is equal to $\$0.00165 \times 100 = \$0.165$ or 16.5¢ per 100 mL.

The 2 L container costs $\$3.59 \div 2 = \$1.795$ per litre. Since 100 mL is $\frac{1}{10}$ of a litre, the cost is $\$1.795 \div 10 = \$0.1795$ or about 18¢ per 100 mL.

The frozen concentrate costs $\$1.71 \div 1180 \approx \$0.00145$ per mL.
Therefore, the cost is approximately $\$0.00145 \times 100 = \$0.145$ or 14.5¢ per 100 mL.

The cost per 100 mL for each item is summarized in the completed table below.

Amount of Orange Juice	Price	Price per 100 mL
$2.63\,L$	\$4.00	15.2¢
$8 \times 200 = 1600\,mL$	\$2.64	16.5¢
$2\,L$	\$3.59	18¢
$1180\,mL$ (mixed from concentrate)	\$1.71	14.5¢

Since the concentrated orange juice has the lowest price of 14.5¢ per 100 mL, the best value for her money is the concentrated orange juice.