Class Practice on Product Purchase

At Abbott’s Ice Cream, Trina bought 3 large cones and 5 small cones for a cost of $21.75. Lateef bought 4 large cones and 8 small cones for $32. Find the cost of a large cone and the cost of a small cone.
Solution

At Abbott’s Ice Cream, Trina bought 3 large cones and 5 small cones for a cost of $21.75. Lateef bought 4 large cones and 8 small cones for $32. Find the cost of a large cone and the cost of a small cone.

Let \( L \) = the cost of a large cone
Let \( S \) = the cost of a small cone

From Trina’s purchases we can write:

\[ (1) \quad 3L + 5S = 21.75 \]

From Lateef’s purchases we can write:

\[ (2) \quad 4L + 8S = 32 \]

Equations (1) and (2) form a 2 by 2 system – we now solve it.

\[ (1) \quad 3L + 5S = 21.75 \rightarrow \text{multiply both sides by 4} \]
\[ (2) \quad 4L + 8S = 32 \rightarrow \text{multiply both sides by } -3 \]

\[ 12L + 20S = 87 \]
\[ -12L - 24S = -96 \]

\[ -4S = -9 \rightarrow \text{Divide both sides by } -4 \]

\[ S = 2.25 \ (\text{cost, in dollars, of a small cone}) \]

Next, substitute this into equation (1) to find \( L \).

\[ 3L + 5(2.25) = 21.75 \]
\[ 3L + 11.25 = 21.75 \]
\[ -11.25 -11.25 \]

\[ 3L = 10.50 \rightarrow \text{divide both sides by 3} \]
\[ L = 3.50 \ (\text{cost, in dollars, of a large cone}) \]

So, in summary, the cost of a large cone is $3.50 and the cost of a small cone is $2.25.