

## PROBLEM SOLVING

### EXAMPLE 4

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for Exs. 39–41

- 39. ROWING** During a practice, a 4 person crew team rows a rowing shell upstream (against the current) and then rows the same distance downstream (with the current). The shell moves upstream at a speed of 4.3 meters per second and downstream at a speed of 4.9 meters per second. The speed of the current remains constant. Use the models below to write and solve a system of equations to find the average speed of the shell in still water and the speed of the current.

#### Upstream

$$\begin{array}{|c|} \hline \text{Speed of shell} \\ \text{in still water} \\ \hline \end{array} - \begin{array}{|c|} \hline \text{Speed of} \\ \text{current} \\ \hline \end{array} = \begin{array}{|c|} \hline \text{Speed} \\ \text{of shell} \\ \hline \end{array}$$

#### Downstream

$$\begin{array}{|c|} \hline \text{Speed of shell} \\ \text{in still water} \\ \hline \end{array} + \begin{array}{|c|} \hline \text{Speed of} \\ \text{current} \\ \hline \end{array} = \begin{array}{|c|} \hline \text{Speed} \\ \text{of shell} \\ \hline \end{array}$$

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- 40. OIL CHANGE** Two cars get an oil change at the same service center. Each customer is charged a fee  $x$  (in dollars) for the oil change plus  $y$  dollars per quart of oil used. The oil change for the car that requires 5 quarts of oil costs \$22.45. The oil change for the car that requires 7 quarts of oil costs \$25.45. Find the fee and the cost per quart of oil.

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- 41. PHONES** Cellular phone ring tones can be monophonic or polyphonic. Monophonic ring tones play one tone at a time, and polyphonic ring tones play multiple tones at a time. The table shows the ring tones downloaded from a website by two customers. Use the information to find the cost of a monophonic ring tone and a polyphonic ring tone, assuming that all monophonic ring tones cost the same and all polyphonic ring tones cost the same.

Customer	Monophonic ring tones	Polyphonic ring tones	Total cost (dollars)
Julie	3	2	12.85
Tate	1	2	8.95

- 42. MULTIPLE REPRESENTATIONS** For a floral arrangement class, Alicia has to create an arrangement of twigs and flowers that has a total of 9 objects. She has to pay for the twigs and flowers that she uses in her arrangement. Each twig costs \$1, and each flower costs \$3.
- Writing a System** Alicia spends \$15 on the twigs and flowers. Write and solve a linear system to find the number of twigs and the number of flowers she used.
  - Making a Table** Make a table showing the number of twigs in the arrangement and the total cost of the arrangement when the number of flowers purchased is 0, 1, 2, 3, 4, or 5. Use the table to check your answer to part (a).