More Elimination Problems

Instructions: For each problem, define your variables, write two equations, solve using elimination, and answer in context. Show your work and verify your solution.

MILD

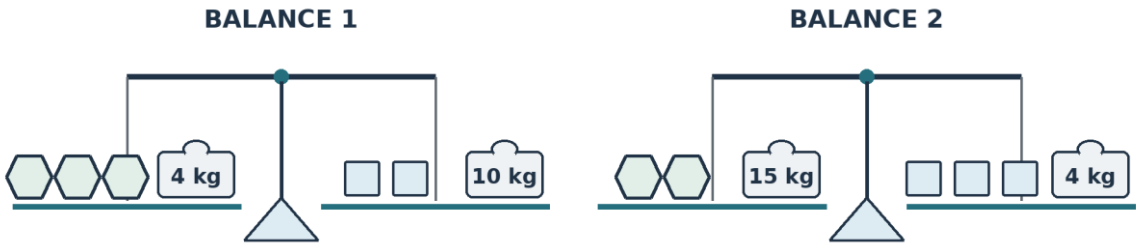
1. Two adjacent angles form a straight line (180°). One angle is 38° larger than the other. Determine the measure of each angle.

2. At a school supply store, two notebooks and three pens cost $16. Four notebooks and five pens cost $30. Determine the price of one notebook and one pen.

MEDIUM

3. At two school performances, adult and student ticket prices remained the same. The first performance sold 24 adult tickets and 18 student tickets, collecting $480. The second performance sold 18 adult tickets and 30 student tickets, collecting $492. Determine the price of each type of ticket.

4. Two balanced scales contain identical hexagonal and square weights. Use the information shown to determine the mass of one hexagon and one square.



SPICY

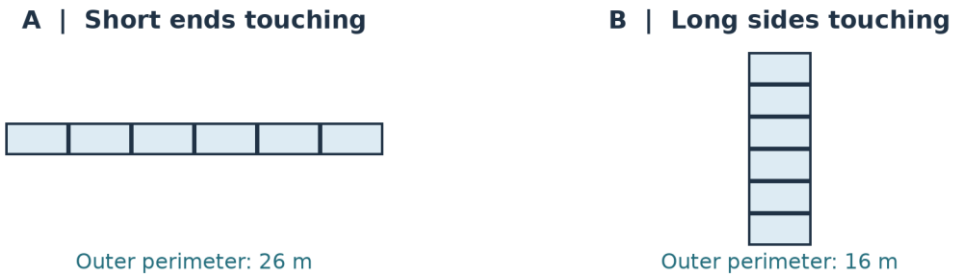
5. A café combines a drink containing 20% apple juice with another containing 50% apple juice. The café uses 4 L more of the 20% drink than the 50% drink. The finished mixture contains 5 L of pure apple juice. Determine how many liters of each original drink were used.

6. A collection contains only dimes and quarters. There are eight more dimes than quarters, but the quarters are worth $1.00 more altogether than the dimes. Determine how many of each coin are in the collection.

EXTRA-SPICY

7. An electrician and an apprentice work together on two projects. On the first project, the electrician works 5 regular hours and the apprentice works 3 regular hours, earning a combined $260. On the second project, the electrician works 2 overtime hours at 1.5 times their regular hourly rate, while the apprentice works 4 regular hours. Their combined earnings are $200. Determine each worker's regular hourly wage.

8. Six identical rectangular cafeteria tables are rearranged into two configurations without gaps or overlaps. When the tables are joined along their short ends, the outer perimeter is 26 m. When the same tables are joined along their long sides, the outer perimeter is 16 m. Determine the length and width of one table. The diagrams are not to scale.



9. A parent and their child have a combined age of 60 years. Six years ago, the parent was three times as old as the child. Determine their current ages.