Topic 4.3 Practice Problems

1. It is a snowy day. From 12:00 to 1:00, the snow pile rises to 3 inches. The snow stops after 4 hours (at 4:00), and the pile is now 12 inches. How much did it snow from 1:00 to 4:00? *First write an equation, then solve.*

2. A parcel is dropped from a plane at a height of h meters. It travels 600 meters downward before it hits a hill that is 100 meters tall. At what height was it dropped? *First write an equation, then solve.*

3. Write four equations using the variable x such that each equation has the same solution as
$$50 = s + 37.$$
Each equation must use a different operation: $+$, $-$, $\times$, and $\div$. Verify the solution for each equation.

4. Suppose the following equation is given:
$$x - y - 30 = a + b + 67.$$
For each part, isolate the requested variable.

   (a) Solve for x.
   (b) Solve for y.
   (c) Solve for a.
   (d) Solve for b.

5. John is 10 years older than Sally in 2025. After 5 years, John is 35. What is Sally's age in 2025? *(Write an equation and solve.)*

6. A library shelf has x books.

   - Monday: 45 books are added.
   - Tuesday: 28 books are removed.
   - Wednesday: 17 books are added.
   - Thursday: 34 books are removed.

   After these changes, the shelf has 203 books.

   (a) Write an equation for x and solve it.
   (b) On Friday, y books are removed. The new total is 168 books. Write an equation for y and solve it.

(c) On Saturday and Sunday, changes occur again. At the end of Sunday, the shelf has 200 books. Which of the following could be possible?

   i. Books were removed on both Saturday and Sunday.

   ii. Books were added on Saturday and removed on Sunday.

   iii. Books were removed on Saturday and added on Sunday.

   iv. Books were added on both Saturday and Sunday.

For every scenario you select, prove it by giving one valid numerical example.

7. Below is the menu cost for school lunches:

Item	Price
Pizza	$3.50
Pasta	$2.45
Ramen	$X
Apple pie	$Y
Chocolate milk	$1.25
Apple juice	$0.75

Holly buys pizza, pasta, ramen, and chocolate milk for a total of $10. James buys an apple pie and apple juice for a total of $4.

How much more expensive is the apple pie than the ramen? *(Write equations and solve.)*