LESSON 22 ···

1. Let x = first even integer
   $x + 2$ = second even integer
   $x + 4$ = third even integer
   Sum = 12, so $x + (x + 2) + (x + 4) = 12$.
   Solve for x, and you get $x = 2$.
   The numbers are 2, 4 and 6.

2. Let x = original price
   $0.15x$ = price increase
   New price = original price + price increase,
   so $x + 0.15x = 1.38$.
   Solve for x, and you get $x = 1.2$.
   The original price was $1.20/lb.

3. Let x = number of dimes
   $x + 3$ = number of nickels
   $0.1x$ = value of dimes
   $0.05(x + 3)$ = value of nickels
   Total value = 0.9, so $0.1x + 0.05(x + 3) = 0.9$.
   Solve for x, and you get $x = 5$.
   Olivia has 5 dimes and 8 nickels.

4. Let x = Kate's age now
   $x + 6$ = Dale's age now
   $x - 3$ = Kate's age 3 years ago
   $(x + 6) - 3$ = Dale's age 3 years ago
   Dake's age 3 years ago = twice Kate's age 3 years ago,
   so $(x + 6) - 3 = 2(x - 3)$.
   Solve for x, and you get $x = 9$.
   Kate is 9 years old. Dale is 15 years old.

5. Let x = number of adults
   Let y = number of children
   A total of 10 tickets, so $x + y = 10$.
   Total cost = 78, so $9x + 7y = 78$.
   Solve the system, and you get $x = 4$ and $y = 6$.
   There were 4 adults and 6 children in the group.

6. Let x = price of an adult ticket
   Let y = price of a child ticket
   $48 for 2 adult tickets and 3 child tickets,
   so $2x + 3y = 48$.
   $44 for 1 adult ticket and 4 child tickets,
   so $x + 4y = 44$.
   Solve the system, and you get $x = 12$ and $y = 8$.
   Adult tickets cost $12 each. Child tickets cost $8 each.

7. Let x = number of nickels
   Let y = number of dimes
   Five more dimes than nickels, so $y = x + 5$.
   Total value = 95, so $0.05x + 0.1y = 0.95$.
   Solve the system, and you get $x = 3$ and $y = 8$.
   Emma has 3 nickels and 8 dimes.

8. Let x = larger integer
   Let y = smaller integer
   Sum of 3 times x and y = 3, so $3x + y = 3$.
   Difference of x and 3 times y = 11, so $x - 3y = 11$.
   Solve the system, and you get $x = 2$ and $y = -3$.
   The integers are 2 and -3.

9. Let x = number of roses
   Let y = number of lilies
   A total of 24 flowers, so $x + y = 24$.
   Total cost = 48, so $2.2x + 1.8y = 48$.
   Solve the system, and you get $x = 12$ and $y = 12$.
   Josh used 12 roses and 12 lilies.

10. Let x = price of an apple
    Let y = price of a pear
    $9.20 for 5 apples and 4 pears, so $5x + 4y = 9.2$.
    $5 for 3 apples and 2 pears, so $3x + 2y = 5$.
    Solve the system, and you get $x = 0.8$ and $y = 1.3$.
    Apples cost $0.80 each. Pears cost $1.30 each.

11. Let x = number of fives
    Let y = number of tens
    A total of 27 bills, so $x + y = 27$.
    Total value = 205, so $5x + 10y = 205$.
    Solve the system, and you get $x = 13$ and $y = 14$.
    Mr. Kim has 13 fives and 14 tens.

12. Let x = Joey's age now
    Let y = Anna's age now
    Joey is three times as old as Anna, so $x = 3y$.
    $x + 5$ = Joey's age in five years
    $y + 5$ = Anna's age in five years
    Joey will be twice as old as Anna in five years,
    so $x + 5 = 2(y + 5)$.
    Solve the system, and you get $x = 15$ and $y = 5$.
    Joey is 15 years old. Anna is 5 years old.

13. Let x = number of 2-point questions
    Let y = number of 5-point questions
    A total of 35 questions, so $x + y = 35$.
    Total points = 100, so $2x + 5y = 100$.
    Solve the system, and you get $x = 25$ and $y = 10$.
    25 questions are worth 2-points each.
    10 questions are worth 5 points each.

14. Let x = number of 4-seat tables

Let y = number of 6-seat tables

A total of 12 tables, so $x + y = 12$.

Total number of seats = 58, so $4x + 6y = 58$.

Solve the system, and you get $x = 7$ and $y = 5$.

7 tables seat 4 people.
5 tables seat 6 people.

15. Let x = width of the rectangle

Let y = length of the rectangle

Length is twice width, so $y = 2x$.

Perimeter = 2(width + length) = 18,
so $2(x + y) = 18$.

Solve the system, and you get $x = 3$ and $y = 6$.

The rectangle is 3 feet by 6 feet.

16. Let x = tens place digit

Let y = ones place digit

Sum = 5, so $x + y = 5$.

$10x + y$ = value of the number xy
$10y + x$ = value of the number yx
yx is 9 less than xy, so $10y + x = 10x + y - 9$.

Solve the system, and you get $x = 3$ and $y = 2$.

The number is 32.