5.4.3 The sum of Eric's and Bob's weights is 9 times the difference of their weights. The positive difference of their weights is also 240 pounds less than the sum. If Eric weighs less than Bob, find Bob's weight.

5.4.4 5 green balls and 2 red balls together weigh 10 pounds, and 1 green ball and 4 red balls together weigh 7 pounds. If all red balls weigh the same amount and all green balls weigh the same, then what is the weight of 8 red and 8 green balls together?

5.5.3★ Find r and s if $\sqrt[3]{r} + 9\sqrt{s} = 21$ and $10\sqrt[3]{r} - \sqrt{s} = 28$.

Problem 5.16: Consider the system of equations

$$x + 3y - 4z = 25,$$
$$-2x + 5y + 7z = -66,$$
$$3x - 2y + 3z = 7.$$

(a) Solve the first equation for x.

(b) Use your answer to (a) to turn the second and third equations into a system of two-variable linear equations.

(c) Solve the system of equations you created in part (b) for y and z, then find x.

5.6.3 In the magic square shown, the sum of the numbers in each row, column, and diagonal are the same. Five of these numbers are represented by v, w, x, y, and z. Find $y + z$. *(Source: AMC 12)*

v	24	w
18	x	y
25	z	21

5.22 Use elimination to solve the two systems of equations below:

(a) $5x - 6y = -64$

$7x + 3y = -44.$

5.23 Use any technique to solve each of the systems of equations below:

(a) $3x - 4y = 26,$

$5x + 8y = 3.$

5.25 For what value of the constant c does the system of equations below have no solutions (x, y)?

$$3x - 5y = -2.3,$$
$$6x = cy + 9.3.$$

5.27 My father's age 5 years ago plus twice my age now gives 65, while my age 5 years ago plus three times my father's age now gives 130. What is my father's age?

5.28 Recall Captain Hook's riddle from the beginning of Chapter 4:

Ye have almost found the treasure. Start from this spot and walk north and east. Three times the sum of the number of northerly steps and the number of easterly steps is four more than four times the number of northerly steps. More than this ye will need to find the treasure. Ye also must know that when ye multiply by five the number two less than the number of northerly steps, ye get the number that is two more than seven times the number of easterly steps.

How many steps north and east should you take to get to the treasure?

5.30 Solve the system of equations below:

$$p + 3q - 2r = 19,$$
$$-2p + 7q - 6r = 26,$$
$$-p - 2q + 8r = -31.$$

5.35 The product of two nonzero numbers is equal to twice the sum. Find the sum of their reciprocals.
Hints: 184

5.36 Find all ordered pairs (x, y) that satisfy both $\dfrac{3x - 4y}{xy} = -8$ and $\dfrac{2x + 7y}{xy} = 43$. **Hints:** 20

5.38★ One morning each member of Angela's family drank an 8-ounce mixture of coffee with milk. The amounts of coffee and milk varied from cup to cup, but were never zero. Angela drank a quarter of the total amount of milk and a sixth of the total amount of coffee. How many people are in the family?