Commentary

Mars, XIV

1. **(b)** The number sentence is a one-step subtraction situation.

2. **(24; 12)** Students might *guess-check-revise* to find an answer. Another way to begin is to write down a list of numbers that sum to 36, and look for two addends where one is twice as much as the other. In the middle grades, this problem might be solved algebraically by letting x be Rex's weight and $2x$ be Fido's weight, and $x + 2x = 36$ so $3x = 36$. Then $x = 36 \div 3$ or 12, and $2x = 24$.

3. **(505)** The number being between 500 and 600 means the hundreds digit is 5. The ones digit is also 5, so the difference between the two is 0, giving 505 as the answer.

4. **(a, b, d)** Pan (a) is divided from the corner of one rectangle to the opposite corner, implying the two parts are equal in area. Students might count whole and half squares to find the area of the surface of each of the last three pans, since they aren't divided symmetrically. The area is 3 for each part of a, b, and d. In (c), the two parts have areas of 2 1/2 and 3 1/2.

5. **(a. grams; b. kilograms; c. kilograms; d. grams)** The problem gives a sense of whether the student has number sense related to the weight of common objects, and the metric units used to measure them.

6. **(2 bananas, 7 apples, 11 oranges, and 20 pieces of fruit)** Students can begin with the fact they know -- 2 bananas -- and find the number of apples by adding 5, and the number of oranges by adding 4 to the number of apples.

7. **(part one: $1.50; part two: $0.75)** The problem encourages students to use mental mathematics, as they must do in such problems in the world outside of school.

8. **(32)** Students have not been introduced to the formula for finding the area of a triangle, so they will find it by counting whole and half unit squares. There are 28 whole unit squares, and then they put together the 8 half squares to make another 4 whole squares, for a total of 32.

9. **[(14, 3); (3, 3); (3, 9); (14, 9)]** The problem measures the student's knowledge of the Cartesian coordinate system in which the first number of an ordered pair gives the horizontal distance from the axis, and the second number gives the vertical distance. The problem also involves "clockwise," a term that may be new to some students, and "90°." Some students will associate the problem with the computer program known as Logo, since a turtle's movement around a grid is common to both.