

Commentary

Venus, XXI

1. **(9)** Students will likely make their jumps on the number line itself, with their pencils. It would help them to make single jumps of 3 units each time, rather than 3 small jumps of 1 unit each, for each jump.
2. **(10)** Students will solve this in two ways. One is to simply go through all the jumps above, but starting at a different place on the line. The other way is to notice that starting at 1 will shift the whole action over 1 place, meaning that the frog will end on the number for the problem above, plus 1.
3. **(10)** Spatial visualization is needed on this problem, unless real blocks are used to duplicate the figure. There are blocks hidden from view which must be accounted for. It's possible that more blocks than 10 can be used for this figure, with even more hidden from view than are necessary to build the figure as seen.
4. **(10)** The constant feature of a calculator is featured in this problem. Students may be curious about this feature, and explore *counting by fives* or *counting by any number* using this feature. Note: Not all calculators have this function. Encourage students to compare what happens with different calculators.
5. **(1 quarter, 1 dime, 1 nickel, 1 penny)** The answer may be drawn or written. Students hopefully will start their approach by using the largest coin possible (a quarter), then moving to the next largest, and so on.
6. **(6, 6)** The number in the middle box can be found first, as the other two numbers that sum to 18 with it vertically, 10 and 2, are known. So this number has to be 6. This means the other box must have 6 in it also, with similar reasoning. Some students will use logical reasoning such as this, while others may simply *guess-check-revise*.
7. **(3)** Students will have intuitive knowledge of “half of a number” by this point in first grade. This problem is a two-step problem that first involves finding half of eight, then removing one of those. In such problems, students should be encouraged to follow the steps with real objects, rather than computation.