

Commentary

Mars, XII

1. **(56)** Some students will add 22 and 22 and then 12 more, and others will add 12 to 22 first, and then add 22 and 34.
2. **(21; 14)** Students might draw a diagram of trees and label the birds, and count up until they have 35 birds. This would be in the seventh tree. Then they could count the types of each type of birds in the seven trees. Another method is to make a chart that shows the ratio, such as the one started to the right.

M	C	total birds
3	2	5
6	4	10
9	6	15

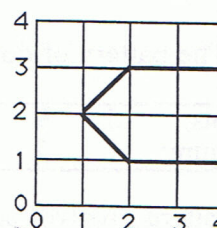
3. **(100)** Give the problem 4×25 . If students think of this as money, as they were encouraged to do, this would represent 4 quarters, which they should know is 100 cents or 1 dollar.
4. **(no; yes)** Students will need to add 35¢ and 25¢ to get the amount that Jamie needs -- 60¢. He doesn't have that much. But that total plus another 5¢ would be 65¢ to buy all three items, and Katie has more than enough.
5. **(26)** Students might work with real or play coins to decide this. More advanced students might write down a list of how many coins she might have under both methods of grouping, and look for a common number.

Grouping by 4, with 2 left: 14, 18, 22, 26, 30, 34, 38, ...
 Grouping by 5, with 1 left: 16, 21, 26,

No need to go any further. Since 26 is in both groups, that number of dimes suffices.

6. **(68)** Students might take an actual box, and draw a ribbon around it and label each part with the correct length. They should find that there are two 10-inch parts, two 6-inch parts and four more 6-inch parts, for a total of 56 inches. Then adding the 12 inches for the bow produces 68.
7. **(201)** Students can use logical reasoning to find this number. Since the number is less than 300, the hundreds digit is a 1 or 2. It must be a 2 so that the ones and tens digits can both be less than the hundreds digit.

8. **(pentagon)** Other students might name the shape as "arrowhead" or "sideways house," which should be accepted. The most important part of the problem is to see the correct drawing, which is shown to the right.



9. **(5 cats won)** Students' reasoning might proceed along the following lines.

From the second picture, 2 donkeys match 6 dogs so I know that 1 donkey matches with 3 dogs, by dividing both sides in half. Then I can substitute 1 donkey for the 3 dogs in the top picture, and know that 1 donkey matches 4 cats. So in the bottom picture, 5 cats would win over 1 donkey.

This type of reasoning is important when students begin algebraic experiences with equations.