

# Commentary

Mars, XVII

1. (9) The students may need to draw a picture with 8 rectangles and place a dot for the tacks to discover that 9 thumbtacks will be needed to hang all 8 pictures with overlapping corners.
2. (24) The problem states that Mike has 12 goldfish. This fact is used to find the number of Alan's goldfish. If Mike has 8 more than Alan, then Alan has 4 fish ( $12 - 8 = 4$ ). Alan has 4 fewer than Mark, so Mark has  $4 + 4$  more which is 8 goldfish. Then the student should add the fish totals together:  $12 + 4 + 8 = 24$  goldfish.
3. (8765, 8756, and 8675) The student might first place the digits from greatest to least: 8765. Then if the 6 and 5 are exchanged, the second number is found: 8756. Since there is no other possibility with the 7 as the hundreds' digit, the student should use the 6: 8675. If the student exchanges the 7 and 5, they will have the next highest number: 8657 which is not needed for the answer. The student will become skilled with more problems like this one.
4. (Garage = 38 ■'s; Stairs = 28 ■'s; Triangle = 32 ■'s) The student will count the whole squares with little trouble. Then they must reason that 2 halves can be put together to make 1 whole square, and count the rest of the area of the garage and the triangle. Recounting is an excellent method for accuracy.
5. (3 adult and 3 children's tickets) The *guess and check* strategy is excellent for this type of problem. The student might try 2 adult ( $2 \times \$6 = \$12$ ) and 4 children ( $4 \times \$4 = \$16$ ). But when \$12 and \$16 are added, they get \$28, not \$30. So they need to make another guess. If 3 adult ( $3 \times \$6 = \$18$ ) and 3 children ( $3 \times \$4 = \$12$ ) is tried, then the total of the \$18 and \$12 is \$30 -- the amount the family spent for the tickets!
6. (12 won, 8 lost) The student might make a list of the numbers that add to 20, since the wins and losses taken together must add to twenty. From the list, select the pair of numbers such that one number is four more than the other. A partial list is demonstrated below:

$10 + 10 = 20$	$10 - 10 = 0$	$13 + 7 = 20$	$13 - 7 = 3$
$14 + 6 = 20$	$14 - 6 = 8$	$12 + 8 = 20$	$12 - 8 = 4 \checkmark$
$11 + 9 = 20$	$11 - 9 = 2$		

Some students will become skilled at doing such problems in their heads if they have a strong fact base knowledge.

7. (11 cm ;  $4 \frac{5}{16}$  inches) The student should receive credit if their answers are close to the above numbers. Accept from 10.9 to 11.1 cm, and  $4 \frac{1}{4}$  (or  $4 \frac{4}{16}$ ) as alternate answers
8. (x) The student might look at several of the equations to ensure that x is the correct sign. It is likely that, as the student places each of the other x signs in the circles, they will also check the mathematics quite naturally.