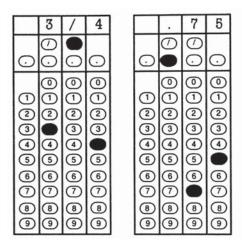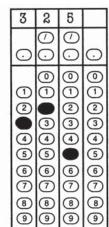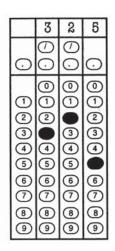## Section 2

25 Questions

Time: 30 Minutes

> **Directions: Solve each of the following problems. Write the answer in the corresponding grid on the answer sheet and fill in the ovals beneath each answer you write. Here are some examples.**

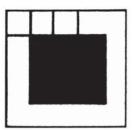*Answer:* 3/4 (−.75; show answer either way)   *Answer :* 325

Note: A mixed number such as 3 1/2 must be gridded as 7/2 or as 3.5. If gridded as "3 1/2," it will be read as "thirty–one halves."

Note: Either position is correct.

1. If $a = 4$, what is the value of $\sqrt{a^2 + 9}$?

2. When a certain number is divided by 2, there is no remainder. If there is a remainder when the number is divided by 4, what must the remainder be?

3. If $a = x^2$ and $x = \sqrt{8}$, what is the value of a?

4. If $\frac{2}{5}x = \frac{5}{2}y$, what is the value of $\frac{y}{x}$?

5. If there are 30 students at a meeting of the Forum Club, and 20 are wearing white, 17 are wearing black and 14 are wearing both black and white, how many are wearing neither black nor white?

6. If $a \,\square\, b$ means $a \cdot b + (a - b)$, find the value of $4 \,\square\, 2$.

7. A drawer contains 4 red socks and 4 blue socks. Find the least number of socks that must be drawn from the drawer to be assured of having a pair of red socks.

8. How many 2-inch squares are needed to fill a border around the edge of the shaded square with a side of 6" as shown in the figure below?

9. If $3x + 3x - 3x = 12$, what is the value of $3x + 1$?

10. If $ab = 10$ and $a^2 + b^2 = 30$, what is the value of $(a + b)^2$?