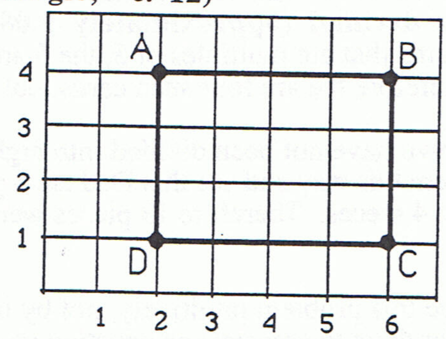
Commentary

Jupiter, XVII

1. **(a. See below; b. rectangle; c. 12)**



2. **(150, 200)** Students can measure with a piece of paper and a pencil the distance from 100 to the second dot, and compare that to the distance from the second dot to 300. They will find the distance to be the same, which means the middle dot is half way between 100 and 300, or is 200. A similar strategy shows that the first open box holds 150.

3. **(61)** Students can divide: $671 \div 11 = 61$

4. **(a. hexagon; b. 6; c. obtuse)**

5. **(24 or 25)** Students can round 57 minutes to 60 minutes, which is one hour. There are 24 hours in a day, therefore an estimate of 24 fatalities per day is reasonable. If a student calculates that since 57 is 3 minutes less than 1 hour, there would be 24 x 3 or 72 extra unaccounted for minutes, meaning another group of 57 minutes in 24 hours, then 25 is a reasonable estimate also..

6. **(precise calculation, estimate)** Either answer might be acceptable in each situation, except the directions say to use each term once. Therefore the student is forced to choose the most likely term for each spot.

7. **(1, 3, 10, 15)**

8. **(The number pattern increases by adding one greater number to the total each time. See alternate formula below.)** $1 + \mathbf{2} = 3$ (the next level); $3 + \mathbf{3} = 6$ (the next level); $6 + \mathbf{4} = 10$ (the next level); $10 + \mathbf{5} = 15$; and so on. Most students won't notice this, but they can find each new number without knowing the previous number. If there are n small rectangles, then the total number of rectangles formed is $(n)(n + 1) \div 2$.

9. **(28)** Following the lead from problem 8, the student can add 6 to 15 to get 21 rectangles with 6 small rectangles, then $7 + 21$ to get the next total. Or, with 7 small rectangles, there are $(7)(8) \div 2$ total rectangles.