Commentary

Jupiter, VI

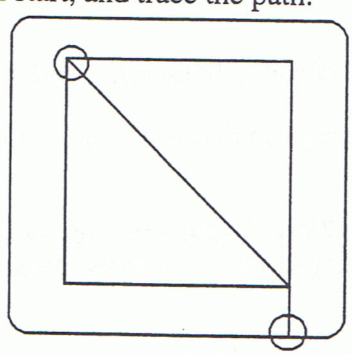
1. **(28 hours, 30 minutes)** Students will likely count from 7:15 one morning to 7:15 the next morning as 24 hours, and then count up by the hour to get to 11:15, finally counting a half hour to 11:45.

2. **(770 feet)** Students may draw the diagram and sub-divide it into two parts. Also, students can figure out the missing lengths. 150 ft.+ 200 ft. + 185 ft. + 25 ft. + 35 ft. + 175 ft. = 770 ft. It is interesting to note that the perimeter of this figure is the same as if the figure were a 185 by 200 foot rectangle.

3. **(a. $33.10; b. 45; c. 1/32)** The pattern for (a) is that each number increase by 20¢. For (b), each succeeding number decreases by half. Each next number in (c) is also half of the preceding number.

4. **(B)** Box A has a 3 out of 5 chance to win with red. Box B has a 2 out of 3 chance to win with red. If students change ratios so that they are based on the same second number, the result will be obvious. 3 out of 5 is the same as 6 out of 10 or 9 out of 15. 2 out of 3 is the same as 4 out of 6, 6 out of 9, 8 out of 12, and 10 out of 15. But then 10 out of 15 is a better chance than 9 out of ten. Students may run a probability experiment to verify this result.

5. **(See figure below.)** A network of paths such as the one below can be traced without lifting a pencil, if it has either 0 or two *odd vertices*. A vertex is *odd* if it has an odd number of paths going in or coming out. Furthermore, if you can trace the network, you have to start at one of the odd vertices, and you'll end up at the other. Therefore the two odd vertices circled below are the only places you can start, and trace the path.



6. **(7)** This can be solved by guess-check-revise, or by working backward.

7. **(a. 6; b. 3; c. 49)** Students with good number sense will notice that the fractions involved are either close to zero or close to 1, which means that each mixed number would either be rounded to the whole number showing, or up to the next whole number. In (a), 3 10/11 rounds to 4 and 2 1/101 rounds to 2, so the sum is close to 4 + 2 or 6. In (b), 5 2/47 rounds to 5, and 2 1/35 rounds to 2, so their difference is close to 5 - 2 or 3. In (c), 6 17/19 rounds to 7, and 7 3/290 rounds to 7, so their product is close to 7 x 7 or 49.

8. **(1/6)** Students might draw a diagram to show that 1/3 of 1/2 is 1/6

9. **(0)** The ten one-digit numbers include zero, which makes the overall product zero also.