Chapter 2 Problems

1) A goat is tethered by a 6 meter rope to the outside corner of a shed measuring 4 meters by 5 meters in a grassy field. What area of grass can the goat graze?

2) Russ, Don, Pamela, and Stephanie, are the first names of four friends who all received sports scholarships. Krieger actually has a full ride, because he is a star in two different sports. Use the clues to determine each person's full name.

- Hicks and Russ play on the same men's volleyball team.

- Drake and Braun have both set women's records in swimming.

- Stephanie and Drake both went to the same high school.

3) Five women have lunch together seated around a circular table. Ms Osbourne is sitting between Ms Lewis and Ms Martin. Ellen is sitting between Cathy and Ms Norris. Ms Lewis is between Ellen and Alice. Cathy and Doris are sisters. Betty is seated with Ms Parkes on her left and Ms Martin on her right. Match the first names with the surnames.

4) 'Look here, George,' said his cousin Reginald. 'By what fractional part does four-fourths exceed three-fourths?'
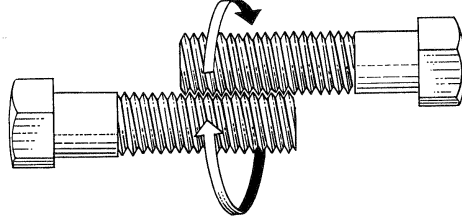 'By one-fourth!' shouted everybody at once.
  'Try another one,' George suggested.
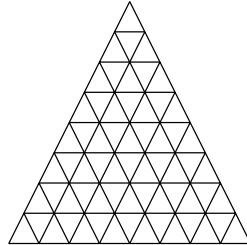 'With pleasure, when you have answered that one correctly,' was Reginald's reply.

5) Three slices of bread are to be toasted under a grill. The grill can hold two slices at once but only one side is toasted at a time. It takes 30 seconds to toast one side of a piece of bread, 5 seconds to put a piece in or take a piece out and 3 seconds to turn a piece over. What is the shortest time in which the three slices can be toasted?

6) Two identical bolts are placed together so that their helical grooves intermesh. If you move the bolts around each other as you would twiddle your thumbs, holding each bolt firmly by the head so that it does not rotate, do they move inward towards each other or outward away from each other?

7) Ross collects lizards, beetles and worms. He has more worms than lizards and beetles together. Altogether in the collection there are twelve heads and twenty-six legs. How many lizards does Ross have?

8) How many triangles are there on an eight-fold triangular grid?

9) Can you always inscribe a square in a triangle?

10) In the Stillwater High School the economics, English, French, history, Latin, and Mathematics classes, are taught, though not necessarily respectively, by Mrs Arthur, Miss Bascomb, Mrs Conroy, Mr Duval, Mr Eggleston, and Mr Furness.

- The mathematics teacher and the Latin teacher were roommates in their college dorm.

- Eggleston is older than Furness but has not taught as long as the economics teacher.

- As students, Mrs Arthur and Miss Bascomb attended one high school while the others attended a different high school.

- Furness is the French teacher's father.

- The English teacher is the oldest of the six both in age and in years of service. In fact he had the mathematics teacher and the history teacher in class when they were students in the Stillwater High School.

- Mrs Arthur is older than the Latin teacher.