Brain Teasers

(13) In going from square A to square B, what is the maximum number of squares that a chess knight could touch, including A and B, if the knight makes only permissible moves, does not touch any square more than once, and does not go outside the 16 squares shown?

(14) (Queen’s Challenge) You must perform a task for your Queen, who is renowned for her perverse and dominating ways. Indeed your heart sinks as she strides purposefully towards you and presents you with an empty chess board.

"Your task," says the Queen, "is to take eight Queens of the same color and place them on the chess board in such a way that none of them controls a square that is occupied by another."

A little confused, you ask, "You mean I have to put each of the Queens on a square that is not attacked by the seven other Queens?"

"Precisely," says the Queen. As she turns to go she adds, "You may use eight Pawns to represent the Queens. And you had better be quick about it, Sir Knight, or it’s off with your head!"

(15) (King’s Challenge) In the distance you can see the King approaching, smiling confidently, a crown on his head and a scepter in his hand. With great dignity, the king sets up the 16 White chess pieces exactly as they appear at the start of the game, but does not set up any of the Black chessmen.

"An interesting position, don’t you think?" says the King.

"Yes, certainly," you reply, not quite sure what to make of it.

"And you notice of course that black has no King?"

"Yes, clearly, Black has no King, nor any other piece," you nod.

"Very well," says the King. "You must place the Black King on the board, so that White, to play, is able to deliver mate in three moves."

(16) (Baseball No-Hitter) In a regular baseball game, there are nine innings. However, a baseball game between the Yankees and the Red Sox is played only six and a half innings due to rain. The Yankees are the home team. Roger Clemens, the pitcher for the Yankees, pitches a no-hitter for the entire game. What would be the minimum number of pitches he would have to throw to achieve his no-hitter?

(17) (Shirts in a Drawer) A drawer contains 20 shirts: 4 tan shirts, 7 white shirts and 9 black shirts. What is the minimum number of shirts needed to be pulled from the drawer in order to be guaranteed to get 7 shirts of the same color?

(18) Six men, one of them the thief who had lifted the Dubidu diamond, were lined up to clear Customs. Each had a suitcase; no two suitcases were the same color (one was black). All the men came from different states (one from Vermont). One man’s name was Fred. Their ages were 22, 23, 24, 26, 27, and 28, and their birthdays were in Jan, Feb, April, May, June, and September.

(a) Elmo was just behind Carl and just ahead of Andy. The three included the man from Wyoming, the one with the tan suitcase, and the 22 year old. Mr. Jules was not among them.
(b) The man from South Carolina stood just behind the one whose birthday fell in September and just ahead of Bert. Their last names (not necessarily in order) were Irish, Kline, and Lamar.

(c) Mr. Kline is three years older than the man with the gray suitcase. The man whose birthday is in Feb. (who is not Mr. Kline) is three years older than Carl.

(d) The man with the blue suitcase was just behind the 26-year-old and just ahead of the one born in June. The three were from South Carolina, Utah and Texas (in one order or another).

(e) Carl’s birthday comes three months after that of the man with the brown suitcase; Mr. Jules’ birthday is three months after that of the 27-year-old; the man from Utah’s birthday is three months after Mr. Lamar’s. These include all the men in line.

(f) Andy is two years older than the man with the maroon suitcase and two years younger than the man from Tennessee (who was not first in line).

(g) Dave is not from South Carolina.

(h) Mr. Hanks was not born in January.

Each man, including Mr Grant) was asked to open his bag. Inspector Ledoux’s experienced fingers detected a suspicious bulge in the lining of the black suitcase. Applying his penknife, he triumphantly held up the stolen Dubidu diamond. **Who stole the diamond?**

(19) (True or False) For each of the following statements, decide whether it is true or false.
1. Statement 2 in this list is true.
2. Statement 1 in this list is false.
3. Statement 3 in this list is false.
4. There are two mistakes in statement 4 in this list.

(20) Consider the following two sentences:
   (a) Safety goggles must always be worn in the building.
   (b) Dogs must always be carried on the escalator.

(21) An inflatable raft is floating in a swimming pool. Which will raise the water level more, tossing a coin onto the raft or tossing a coin into the water?

(22) A bank robber seizes three gold bars weighing twenty pounds each. In order to escape, he must cross a bridge which can only support a maximum of 250 pounds. If the bank robber weighs 200 pounds, how can he cross the bridge?

(23) A woman is lying on an inflatable raft in a swimming pool, drinking a glass of lemonade. If she takes an ice cube out of the lemonade and throws it into the swimming pool, when will the water level rise, when the cube falls into the water or not until the cube is completely melted?

(24) Consider the following two sentences:
   (a) The boys drank two cups of cocoa because they were cold.
   (b) The boys drank two cups of cocoa because they were hot.

(25) (The Place-Card Dilemma) You are assigned the task of making folded place-cards for a dinner your office is having. You decide to use your computer to print out the names of everyone attending. You realize that, ideally, you could place four different names on each 8 1/2” x 11” piece of paper and, by cutting the paper into four equal
parts and folding each part in half, you can get four folded place-cards per sheet of paper.

Unfortunately, you are unable to use your word processing program precisely enough to get four different names in the proper places; you are, however, able to precisely locate one name on a sheet of paper so that, if the paper was cut up into four congruent pieced and you folded that piece in half, you’d get one correctly folded place-card. You can also order the computer to send a page feed after each name, so that you can actually print on as many pieces of paper as you want and get one correctly folded place-card out of each sheet of paper. How can you create all the place-cards you need without wasting any paper?