

# Mental Exercise

By David Beagan

**Time Slice.** Consider a clock face. Think of it as a circle with 12 numbers positioned around the edge of the circle. Your task is to make two straight cuts all the way through the clock face dividing it into pieces so that each piece's numbers add up to the same sum. Note, the clock face could be divided into three or four pieces.

**Pharmacy Fakes.** A pharmacist has ten bottles of pills. One of the bottles has faulty pills that weigh 6 grams instead of 5 grams. To find the defective bottle of pills, he could weigh a pill from each bottle. How could he find the faulty pills by weighing just once.

**Heteronyms.** A heteronym is a word with two different pronunciations. Guess the heteronym from two clues. For example:

The low notes in music.  
A kind of a fish.

The answer is bass. Low notes are bass notes and bass is a kind of fish. Now try these:

- A. An old vinyl disk of recorded music.  
To capture something on a physical medium.
- B. A flaw in something.  
To give up allegiance to a country in exchange for allegiance to another.
- C. An opening point to gain access to a place.  
To mesmerize.
- D. A heavy metal.  
To show someone the way.
- E. Naturally blowing air.  
To add tension through a circular motion.
- F. Tiny.  
A amount of time.

And try filling in the following blanks, with two words but the same spelling.

- G. After the performance, the audience erupted in an ovation, the virtuoso he set down his \_\_\_\_ and took a \_\_\_\_.

**Tired Trip.** Kelly takes a road trip in a car with four new tires and a new spare. Kelly rotates all five tires over the course of the trip so each tire has the same number of miles on them at the end of the trip. How many miles are put on each tire?

**Even Odds?** In the Chance family, disputes are often settled by having the two children play an even odds game. One child gets even the other gets odd. Each child, behind their back, holds up a number of fingers from none to five. When the hands are revealed the total number of fingers are added up and if even the child assigned evens wins the dispute. Otherwise the child assigned odds wins.

One day, a child who was assigned odds objected saying that the outcome was not fair because:

Even + Even = Even      Even + Odd = Odd.  
Odd + Odd = Even

So it looks like Even has a better chance of winning. Is this correct?

## Answers

**Time Slice.** If you add up the numbers from 1 to 12, and divide by three, it equals 26. This gives you a good start to figure it out. Start at a point between the 10 and 11 and cut to the point between the 2 and the 3. The other cut, start between the 8 and the 9 and cut to the point between the 4 and the 5. Each of these three pieces adds up to 26.

**Pharmacy Fakes.** The pharmacist can take one pill from a bottle, two pills from another bottle, three pills from another, and so on, keeping track of which pills come from which bottle. This is 55 pills in all, which should weigh 275 grams if all pills had the correct weight. If the total weight of all these pills is 276 grams then the faulty bottle is the from which he took two pills. If 277 grams, the bottle from which he took two pills is bad, and so on.

## Heteronyms

- A. Record.      B. Defect.
- C. Entrance.    D. Lead.
- E. Wind.        F. Minute.
- G. Bow.

**Tired Trip.** The four tires that are on the road at any one time log a total of 20,000 tire miles. 20,000 miles divided by five tires gives 4,000 miles per tire.

**Even Odds.** Not correct. The game is fair:

Even + Even = Even      Even + Odd = Odd.  
Odd + Odd = Even      Odd + Even = Odd