

POLYRHYTHMS IN MUSIC

1. *Tabla* drums are commonly played in India. A tabla drummer uses extremely complicated rhythms that can go on for many beats before they repeat. The drummer might play a rhythm that repeats every 13 beats with one hand while simultaneously playing a rhythm that repeats every 15 beats with the other hand. How many beats would it take before the two hands of the Indian drummer were playing together again?
2. Jazz drummers also use complicated polyrhythms in their music. It is common for a jazz drummer to simultaneously play a rhythm in a cycle of 2 with one hand, a cycle of 5 with the other hand, and a cycle of 4 with a foot on the bass drum. How many beats would it take for both of the drummer's hands and the drummer's foot to be striking the drums at the same time?
3. If six drummers were playing different rhythms that accented 2, 3, 4, 5, 6, and 7 beat cycles, how many beats would pass before they were all accenting together? Notice that this is the polyrhythm created by all the rhythms of the polyrhythm chart.
4. Sometimes a drummer will play a pattern that switches back and forth between two rhythms instead of a pattern that repeats just one rhythm. For example, a drummer might accent after two beats, then after three beats, then again after two beats, and so on. If one drummer is playing this pattern and another is alternating accents between four and five beats, what is the smallest number of beats that will pass before the two drummers accent together? Be careful; the answer is not 45! Describe how you determined the answer.