The JETS Challenge
Provided by Dave Meredith, Associate Professor,
Penn State University-Fayette

Challenge 26 — The Challenge of the Stars & Stripes

Problem:

The famous march by John Philips Sousa, Stars & Stripes Forever, is 242 measures long and written in cut time. The first trumpet part has an average of 1 quarter note and 2 eighth notes per measure. The piccolo part has 0.5 quarter and 3 eighth notes respectively, and the tuba part averages 1.5 quarter and 1.0 eighth notes respectively.

If the full marching bank has music represented by the average number of notes for the three above parts, how many band members are required to play a collective total of one million notes while performing this single piece?

Solution:

	Trumpet	Piccolo	Tuba
quarter notes	1	.5	1.5
eighth notes	2	3	1
total notes	3	3.5	2.5

Average of 3 notes per measure for all band members.

$\Rightarrow$ Avg. 3×242 measures $= 726$ notes per song per band member

$\Rightarrow 1{,}000{,}000 / 726 = 1377.4$

$= 1{,}378$ band members