

Math Month Challenge 2022

Scheduling Puzzle



Suppose you are in charge of a sports league and - calamity! - your scheduler quit days before the season starts. The sporting event is a bit strange in that three teams play on a field at once, so matches consist of exactly three teams. To ensure fairness, your league requires that each team plays on a field exactly once with each other team during the season.

Luckily, before your scheduler quit, they left a partially filled out schedule for the 7 week season. This is shown below. Unfortunately, it's now up to you to complete the schedule. Each week, we know every team plays exactly one game a week and the games are listed as a triples $x - y - z$ to indicate teams x , y , and z are playing each other that week. Also, for simplicity, we know your scheduler always listed the teams in a triple in numerical order, so in the triple $x - y - z$, we know $x < y < z$.

Your goal: complete the entire schedule to uncover a secret number. This can be 7 to 14 digits long and is indicated by the boxed locations in the schedule.

Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
$\underline{1} - \underline{2} - \underline{3}$	$\underline{1} - _ - \underline{5}$	$_ - \underline{6} - \underline{7}$	$\underline{1} - _ - \underline{9}$	$_ - \underline{10} - \underline{11}$	$\underline{1} - _ - \underline{13}$	$\underline{1} - \underline{14} - _$
$\boxed{_} - _ - _$	$_ - _ - _$	$\underline{2} - \underline{9} - \underline{11}$	$_ - \underline{12} - _$	$_ - \underline{13} - \underline{14}$	$_ - _ - \underline{6}$	$_ - _ - \underline{7}$
$\underline{5} - _ - _$	$\underline{3} - \underline{13} - _$	$\boxed{_} - _ - _$	$_ - _ - \underline{6}$	$\underline{3} - \underline{4} - _$	$\boxed{_} - _ - \underline{10}$	$_ - _ - \underline{11}$
$_ - _ - \underline{13}$	$_ - \underline{9} - \boxed{_}$	$_ - \underline{10} - _$	$\boxed{_} - _ - _$	$\boxed{_} - \underline{9} - _$	$_ - _ - \underline{15}$	$\underline{4} - \boxed{_} - \underline{13}$
$_ - \underline{9} - \underline{15}$	$_ - _ - _$	$_ - _ - \underline{13}$	$\underline{7} - \underline{10} - \underline{13}$	$_ - _ - _$	$_ - \underline{8} - _$	$_ - _ - \underline{12}$

Your solution should be the boxed numbers listed as [Week 1 number][Week 2 number]...[Week 7 number].