## When You Need a Quasigroup with a Hole of Size 4, 6, or 8

Ben Wehrung\*, Jacksonville University

Many recursive constructions for pairwise balanced designs require quasigroups with holes of size 2. When sufficient, these constructions are clean and efficient; however, there are time when these quasigroups are less than sufficient. For instance, there are times when a quasigroup with a hole of size 4 or greater would be required. For such moments as these, a construction for quasigroups with a hole of size 4, 6, or 8 will be presented.

Keywords: quasigroup with holes, latin square, triple system, pariwise balanced designs, blocks