

Math 417 Worksheet - Feb. 1, 2019

This is a partially filled group table for a mystery group of order 6.

	e	g_1	g_2	g_3	g_4	g_5
e	e	g_1	g_2	g_3	g_4	g_5
g_1	g_1	e	g_5	g_4	g_3	g_2
g_2	g_2	-	e	-	-	-
g_3	g_3	-	-	e	-	-
g_4	g_4	g_2	-	-	g_5	e
g_5	g_5	-	-	-	e	g_4

Remember that each row and column is a permutation of $\{e, g_1, g_2, g_3, g_4, g_5\}$

Thus, $g_3 * g_5$ can't be g_3, e (row) or g_2, g_4, g_5, e (column)

so $g_3 * g_5 = g_1$ is fixed.

We will eventually know this group well

Note G is not abelian:

$$g_4 * g_1 = g_2, \quad g_1 * g_4 = g_5$$

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g_2	g_2	g_4	e	g_5	g_1	g_3
g_3	g_3	g_5	g_4	e	g_2	g_1
g_4	g_4	g_2	g_3	g_1	g_5	e
g_5	g_5	g_3	g_1	g_2	e	g_4

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