

Jacob Malone

Q8

11/7/21

① Laplace's partial differential equation is  $\nabla^2 f = 0$

It was first developed by Poisson.

② Gauss was born in Brunswick, his father was a Saxe minister.

③ Yes, it was proved by Gauss.

(1)  $G = \{0, 1, 2, 3, 4, 5\}$

① We show the commutator of two random elements is the identity.

The inverse is the identity, since  $arb = ab$  unless  $arb \geq n$ , then  $arb = 0$

(b) is a cyclic group of order 6.

(c) The inverse of any element of  $\{1, 3, 5\}$  is in  $\{1, 3, 5\}$  so it is a subgroup

(d)  $\{0, 2, 4\}$  is also a subgroup because it fits the axioms.

d.  $\{0, 4, 11, 21, 31, 41, 51\}$