

Quiz 8

① $\frac{d^2v}{dx^2} + \frac{d^2v}{dy^2} + \frac{d^2v}{dz^2} = 0$, (Euler)

② Brunswick, Germany, Day harbor

③ Yes, Gauss

④ $G = \{0, 1, 2, 3, 4, 5\}$

a) - it contains the identity value, 0

- multiplication "x" = addition mod 6

Since any number mod 6 is ≥ 0 and ≤ 5 , it must be in the group

- multiplication associativity applies since we are still doing mod 6, the order would not change that

- inverses: $6 \bmod 6 = 0$ (the identity value)

$$0 \bmod 6 = 0$$

All values, $0 \rightarrow 5$, have some value within the same group where $m+n=6$, or $m \cdot n = 1$.

b) No, it is not. The inverse of 3 is in our case, which is not in the group. inverse of 0 is 1, and inverse of 5 is 2. also not a group.

No, does not contain 0

c) it contains the identity value.

- $0 \wedge 2 = 2$ ✓ multiplication

$0 \wedge 4 = 4$ ✓

$2 \wedge 4 = 0$ ✓

- inverses: all in group

- associativity applies

d) No time.