

Quiz 8 MTH 450/550 Fall 2023

generated by 4: $\{4, 8, 12, 2, 6, 10, 0\}$

$$4^1 = 4$$

$$4^2 = 4 + 4 = 8$$

$$4^3 = 8 + 4 = 12$$

$$4^4 = 12 + 4 \pmod{14} = 16 \pmod{14} = 2$$

$$4^5 = 2 + 4 = 6$$

$$4^6 = 6 + 4 = 10$$

$$4^7 = 10 + 4 \pmod{14} = 0$$

are any others generated by 6?

$$6^1 = 6$$

$$6^2 = 6 + 6 = 12$$

$$6^3 = 12 + 6 \pmod{14} = 18 \pmod{14} = 4$$

$$6^4 = 4 + 6 = 10$$

$$6^5 = 10 + 6 \pmod{14} = 2$$

$$6^6 = 2 + 6 = 8$$

$$6^7 = 8 + 6 \pmod{14} = 14 \pmod{14} = 0$$

nothing new ...

also nothing new from $4+6$ because both are even!