

# Maths Circle India

TIFR-STCS Maths Circle Team

Session 4: June 3, 2022

## 3 What remains?

1. When you divide a number of the form  $n^3 - n$  by 6, what remainders are possible? Here,  $n$  is an arbitrary natural number (i.e., a number like  $1, 2, 3, 4, \dots$ ).
2. When you divide a perfect square (i.e., a number like  $1, 4, 9, 16, 25, \dots$ ) by 8, what remainders are possible?