

## Prelecture

$$T = \{(a, b, c) \mid a, b, c \in \mathbb{N} \text{ and } a = b = c\}$$

1.  $(0, 0, 0) \in T$
2. If  $(a, b, c) \in T$

$$F = \{x \mid x \in \mathbb{N} \text{ and the decimal representation of } x \text{ contains on 5s}\}$$

$$F = \{5, 55, 555, \dots\}$$

1.  $5 \in F$
2. If  $x \in F$  then  $10x + 5 \in F$
3. Nothing else in  $F$

```
public static boolean isInf(int n){
    if(n<10){
        if(n==5){
            return true;
        }else{
            return false
        }
    }else{
        int lastDigit = n % 10;
        int initialDigits = n/10;
        if(lastDigit==5){
            return isInf(initialDigits);
        }else{
            return false;
        }
    }
}
```

---

## Lecture

Let  $f: \mathbb{Z}^+ \rightarrow \mathbb{R}^+$  where  $f(x) = \frac{1}{x}$

Is  $f$  one-to-one?

$$f(x) = f(y)$$

$$\frac{1}{x} = \frac{1}{y}$$

$$\frac{y}{x} = \frac{y}{y}$$

$$\frac{xy}{x} = \frac{xy}{y}$$

$$y = x$$