

# FROBENIUS PROBLEM

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# Different Currency



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4-cent coin



7-cent coin

**Can you pay Captain Gulliver exact**

- 4 cents?
- 7 cents?
- 11 cents?
- 1 cent?
- 13 cents?
- 101 cents?

# 4-cent and 7-cent coin system in Lilliput

- What are the numbers you can exactly change?
- What are the numbers you can't change?
- If you can change a number, how many different ways can you do it?

- **7-cent and 11-cent coin system in Laputa**
- **3-cent and 6-cent coin system**
- **4-cent and 6-cent coin system**

- **p-cent and q-cent coin system**
- **p and q are relatively prime**
- **What is the largest amount we can't change?**

$Ap + Bq = x$  where  $A$  and  $B$  are positive integers.

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$$pq - p - q$$

# McNugget Problem



Can you buy exactly

- 12
- 14
- 16
- 41

McNuggets?