

The Bridge and Torch

Four students need to cross a bridge at night. They have **1 torch**, and the bridge is too dangerous to cross without it. At most **2 people can cross at a time**.

Each student walks at a different speed:

- Student A: **1 minute**
- Student B: **2 minutes**
- Student C: **7 minutes**
- Student D: **10 minutes**



When two students cross together, they move at the **slower person's speed**.

What is the **fastest possible time** for all four students to cross?

The 3 Switches

You are outside a closed room. Inside are **3 light bulbs**. Outside are **3 switches**, each controlling one bulb. You may enter the room **only once**.

How can you figure out which switch controls which bulb?



The Missing Dollar

Three students pay **\$30** for a room. Later, the manager realizes the room should have cost **\$25**, so he gives the bellhop **\$5** to return.

The bellhop keeps **\$2** and gives **\$1 back to each student**.

So each student paid **\$9**, for a total of **\$27**.

The bellhop kept **\$2**.

That makes **\$29**.

Where is the missing dollar?



The Poisoned Drink

A king has **1000 bottles of wine**. One bottle is poisoned. The poison kills exactly **24 hours after drinking**.

The king has only **10 prisoners** to test the wine, and he needs to know which bottle is poisoned in **24 hours**.

How can he do it?



The Farmer, Fox, Chicken, and Grain

A farmer needs to cross a river with a **fox**, a **chicken**, and a **bag of grain**. He can only take **one** with him at a time.

He cannot leave:

- the fox alone with the chicken
- the chicken alone with the grain

How does he get everything across?



The 100 Locker Problem

There are **100 lockers**, all closed.

100 students walk by.

- Student 1 opens every locker
- Student 2 changes every 2nd locker
- Student 3 changes every 3rd locker
- Student 100 changes locker 100

Which lockers are open at the end?



The Two Doors

You are in a room with **2 doors**. One door leads to freedom, the other to danger. There are **2 guards**:

- one always tells the truth
- one always lies

You may ask **one question to one guard**.

What do you ask?

