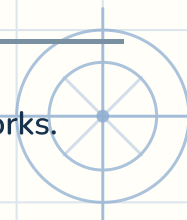


Balance puzzles — Up to 70 coins

Name: _____

Date: _____



Show what you would weigh each time, and how you know nothing shorter works.

- 1 7 coins look identical. One is fake and slightly lighter than the rest.

What is the fewest weighings that are certain to find the fake?

Weighings

.....

.....

.....

- 2 56 coins look identical. One is fake and slightly lighter than the rest.

What is the fewest weighings that are certain to find the fake?

Weighings

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- 3 10 coins look identical. One is fake and slightly heavier than the rest.

What is the fewest weighings that are certain to find the fake?

Weighings

.....

.....

.....



Balance puzzles · Up to 70 coins — Answer key

If they are stuck

- A balance can say three things, not two. What is the third?

1. Coins still suspect after each weighing: $7 \rightarrow 3$, then weigh two of the last three — the lighter pan or the one left off. That is 2 weighings.

3. Coins still suspect after each weighing: $10 \rightarrow 4 \rightarrow 2$, then weigh the last two — the heavier one is fake. That is 3 weighings.

2. Coins still suspect after each weighing: $56 \rightarrow 19 \rightarrow 7 \rightarrow 3$, then weigh two of the last three — the lighter pan or the one left off. That is 4 weighings.

