An Old Merchant
and his Four Children

Lagash

Story

An old merchant lived in the city of Lagash....

Lagash, one of the most important capital cities in ancient southeastern Iraq, located between the Tigris and Euphrates rivers

He left sixty pieces of gold to his four children.
In his last will he said that the oldest child would get one third of the gold pieces,
the second oldest one fourth,
the third one fifth,
and the youngest one one sixth.
He also said that they must divide any remaining pieces among themselves in any way they find to be just and fair.

Task.

In a face-to-face class, students work in groups of four, and each student assumes the role of one of the children of the old merchant. (In a virtual class, students may work on the problem in breakout rooms, and assume all four roles!) Each group (each person in a breakout room) gets 60 pennies, representing the 60 gold pieces.

(In a face-to-face class, if a group has only three members, one student has to play two roles.)

They have to divide the "gold pieces" according to their father's will, and to decide how the remaining pieces are to be distributed.

sixty gold pieces AKA pennies….

Remark.

   Students should not use paper and pencil, or manipulatives (unifix cubes, base ten blocks) for calculations. All calculations should be done mentally or with the help of a four-operation calculator (this is the teacher's decision).

How to divide the gold pieces? Do you have 60 pennies (or counters or …)?

Shall we try it in small groups first?

Group time!

What did you decide?
How to divide the gold pieces?
What about the extra pieces?

What solutions did you get?

What solutions did you get?

If it's needed, here is a solution…

The first child gets one third of 60 = 1/3*60 = 20 gold pieces.
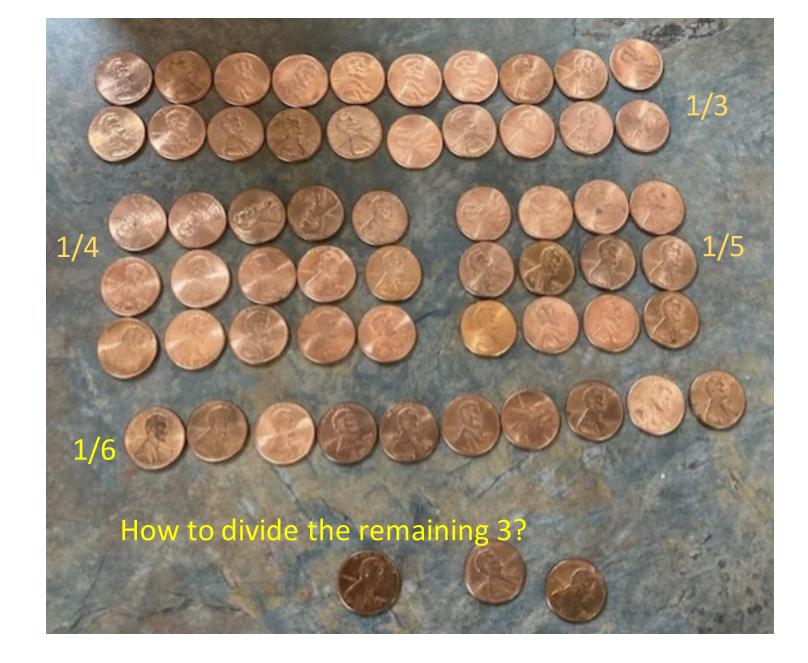(In how many ways can we arrange them into a rectangular array?)

The second child gets ¼ of 60 = ¼*60 = 15 gold pieces.
(In how many ways can we arrange them into a rectangular array?)

The third child gets 1/5 of the gold pieces.

1/5 of 60 = 1/5*60 = 12.

(In how many ways can we arrange them into a rectangular array?)

The fourth child gets 1/6 of the gold pieces.

1/6 of 60 = 10.

(In how many ways can we put them into a rectangular array?)

Here are the "gold pieces" arranged for each child:
1/3 + ¼ + 1/5 + 1/6.
Can we add these fractions?
What is the common denominator?

How many out of 60?
20 + 15 + 12 + 10 = 57

How many left over?

How to divide the ones that are left over?

Solution

The "gold pieces" are divided, 20, 15, 12, and 10, with 3 pieces left.
It is likely that students will give the extra pieces to the two youngest
children, 12+1 = 13, and 10+2 = 12. But they should not be told that one
method is "fairer" than any other. It is their judgment.

 Students' solutions can be the subject of a whole class discussion. Also a
follow-up written assignment could be a good choice. Students should be
asked to write about how they solved the problem, what they thought
was fair, and why.

Using pennies in this task is important. Do not change it into a word
problem!

The End