



Problem of the Week Grade 7 and 8

Life is Not Fair Solution

Problem

A sum of money is to be divided among three children: Alex, Bogdan, and Chai. The money will be split as follows:

- (i) Alex receives \$500 plus $\frac{1}{5}$ of what then remains;
- (ii) Bogdan then receives \$800 plus $\frac{1}{4}$ of what then remains; and
- (iii) Chai then receives the rest, which is \$900.

How much is the original sum of money? Which child receives the most money?

Solution

Start from Chai and work towards Alex.

Bogdan received $\frac{1}{4}$ of the remainder so what is left for Chai is $\frac{3}{4}$ of the remainder. So \$900 is $\frac{3}{4}$ of the remainder.

If $\frac{3}{4}$ of the remainder is \$900 then $\frac{1}{4}$ of the remainder is \$300.

So just after Bogdan received \$800, there was \$300 + \$900 or \$1 200 left.

Therefore, before Bogdan got any money there was \$1 200 + \$800 or \$2 000.

Bogdan received \$800 + \$300 = \$1 100.

Alex received $\frac{1}{5}$ of the remainder so what is left for Bogdan is $\frac{4}{5}$ of the remainder. So \$2 000 is $\frac{4}{5}$ of the remainder.

If $\frac{4}{5}$ of the remainder is \$2 000 then $\frac{1}{5}$ of the remainder is \$500.

So just after Alex received \$500, there was \$500 + \$2 000 or \$2 500 left.

Therefore, before Alex got any money there was \$2 500 + \$500 or \$3 000.

Alex received \$500 + \$500 = \$1 000.

Alex received \$1 000, Bogdan received \$1 100, and Chai received \$900.

\therefore the original sum of money was \$3 000 and Bogdan received the most money.

