March 11, 2007

Homework sheet 3 (**Factorization and addition of two fractions).** Name:

Question 1. Find all factors in 180.

Question 2. Can 180 be divided by 4? by 9? by 8? by 24?

Question 3. Simplify

$$\frac{70}{135} = \quad ; \qquad \frac{36}{1008} = \quad .$$

Rule. Let $a,\ b,\ m,\ n$ are four numbers. We will see how to compute

$$\frac{a}{b} + \frac{m}{n}.$$

The first easy question is: find a number which can be divided by b and n. **Answer:** one of that number can be $b \cdot n$ (which can be simplified as bn).

Secondly, we observe that

$$\frac{a}{b} = \frac{a}{b} \cdot \frac{n}{n} = \frac{an}{bn},$$

and

$$\frac{m}{n} = \frac{m}{n} \cdot \frac{b}{b} = \frac{mb}{bn}.$$

So,

$$\frac{a}{b} + \frac{m}{n} = \frac{an}{bn} + \frac{mb}{bn} = \frac{an + mb}{bn}.$$

You can simplify your answer in the last step.

Question 4. Find

$$\frac{2}{7} + \frac{1}{3} = \quad ; \qquad \frac{1}{6} + \frac{1}{3} = \quad .$$

Comments for parents: When kids are working on $\frac{1}{6} + \frac{1}{3}$ There can be more than one ways: Here are two:

Method 1:

$$\frac{1}{6} + \frac{1}{3} = \frac{3}{3 \times 6} + \frac{6}{3 \times 6} = \frac{9}{3 \times 6} = \frac{1}{2}.$$

Or method 2:

$$\frac{1}{6}+\frac{1}{3}=\frac{1}{6}+\frac{2}{2\times 3}=\frac{3}{2\times 3}=\frac{1}{2}.$$

However, method 2 usually involves the concept "least common denominator" (LCD), which I may cover later. For example, here might be a fun question: Jane goes to Chinese school once every six weeks, Mike goes to the same school once every eight weeks. They met each other today in the Chinese school. After how long they will meet each other again in the Chinese school?