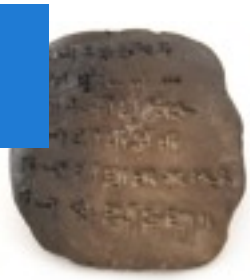
Babylonian Maths



Babylonian Fractions

How do you know when a number is a fraction, or has a fraction part?

The Babylonians did not have a symbol for fractions. It would only be the context which indicated if a number was a fraction or not.

If the two numbers below are fractions less than 1 (so the whole number part is 0), can you work out what they might be?

Remember that the Babylonian system is in base 60!

The first fraction is $\frac{30}{60}=\frac{1}{2}$; the second is $\frac{25}{60}=\frac{5}{12}$

To save having to draw Babylonian symbols, we will use modern notation, but in base 60.

The two fractions above would then be 0;30, meaning no whole numbers and 30 sixtieths, and 0;25 meaning no whole numbers and 25 sixtieths.

In this worksheet, the first number is always a whole number and the second number is the fraction part.

Convert these base 60 fractions into base 10 fractions:

1. 0;20 .....
2. 0;45 .....
3. 0;10 .....
4. 0;36 .....
5. 0;55 .....
6. 1;24 .....
7. 2;50 .....
8. 8;18 .....

Can you find a base 60 fraction which cannot be exactly converted to a base 10 fraction?

Convert these base 10 fractions into base 60 fractions:

1. $\frac{13}{30}$ .....
2. $\frac{1}{4}$ .....
3. $\frac{2}{3}$ .....
4. $\frac{1}{5}$ .....
5. $1\frac{3}{10}$ .....
6. $2\frac{7}{12}$ .....

Can you find a base 10 fraction which cannot be converted to a base 60 fraction?

http://motivate.maths.org/content/BabylonianMaths
Produced by Motivate, part of the Millennium Mathematics Project at the University of Cambridge, with grant funding from the Higher Education Innovation Fund 4 - Knowledge Transfer Project