

1. RATIONAL NUMBERS

When you ask someone what a rational number is, you tend to get two different answers:

- (a.) A number that can be expressed as a fraction of two integers. (In other words, a number that can be written as a/b where a and b are both integers.) So, for example, $22/7$, 5 (otherwise known as $5/1$ or $10/2$ or $15/3$, et cetera), and $-1/3$.
- (b.) A number whose decimal expansion eventually begins repeating. So for example, $0.1723\overline{45456}$, or 7 (otherwise known as $7.0000\dots$ or $7.\overline{0}$), or -27.879 .

Prompt. Are these actually the “same” answer?

For your homework submission, write a complete response to the above prompt, giving full reasoning. If you do not have an answer, you must explain what explorations you undertook—and you must write at least three appreciably different things that you tried to explore potential answers.

Explore alone, or with a peer. As usual, I want you to hold the following high standard for yourself: It is not enough for you to understand something; you must be able to fully convince someone else that whatever you have come to understand is correct. You are allowed to say that you do not understand something, and defiantly reject an explanation as not good enough for you.