How many fractions are there between 0 and 1?
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1. Is it possible to split 5 apples evenly between 6 people without cutting a single apple into more than 3 parts?

2. A rancher split his cattle between his sons as follows. The eldest son got one cow and 1/7 of the remaining cows; the next son got two cows and 1/7 of the remaining cows; the third son got three cows and 1/7 of the remaining cows, and so on. In this way, the entire herd had been split up entirely between all of the sons. How many sons did the rancher have and how large was his herd?

3. At sunrise two old women started to walk towards each other. One started from point A and went towards point B while the other started at B and went towards A. They met at noon but did not stop; each one continued to walk maintaining her speed and direction. The first woman came to the point B at 4:00 pm, and the other one came to point A at 9:00 pm. At what time did sunrise that day?

4. Suppose we have a barrel of wine and a cup of tea. A teaspoon of wine is taken from the barrel and poured into the cup of tea. Then the same teaspoon of the mixture is taken from the cup and poured into the barrel. Now the barrel contains some tea and the cup contains some wine. Which volume is larger – that of the tea in the wine barrel or of the wine in the teacup?
Note: The same question could be asked after the process has been repeated several times.

5. A car and a van are 180 miles apart on a straight road. The drivers start driving toward each other at noon, the car at 50 mi/h, and the van at 40 mi/h. A fly starts from the front bumper of the van at noon and flies to the bumper of the car, then immediately back to the bumper of the van, back to the car, and so on, until the car and the van meet. If the fly flies at a speed of 100 mi/h, what is the total number of miles it's flown?

6. Gulliver came to the island country of Lilliput with 7,000,000 of Lilliput dollars. He spent his money on bottles of milk at 7 dollars per bottle; at the time, an empty bottle cost 1 dollar. When he drank all the milk he returned the empty bottles and immediately used all the money he got back to buy more milk. While doing this he noticed that both the price of milk and the price of an empty bottle doubled. Then he drank all the milk again, returned the bottles and used all the money again to buy more milk, and so on. Every time he went back to the shop for more milk both the price of milk and the price of an empty bottle doubled. How many bottles of milk has Gulliver drunk altogether?

7. A stick has been divided by red marks into 7 equal segments, and by green marks into 13 equal segments. Then it was cut into 20 equal pieces. How many color marks does each of these 20 pieces have?

8. Find a fraction strictly between $\frac{48}{97}$ and $\frac{49}{99}$ with the smallest possible denominator.

9. What are the next 5 terms in the following sequence?

    0, 1, 3, 5, 9, 11, 17, 21, …