Connecting **Fractions** with **Decimals** (and vice versa)

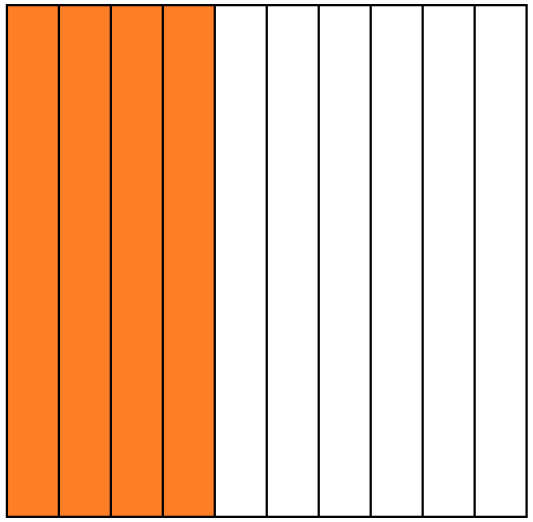
$$\frac{1}{4} = 0.25$$

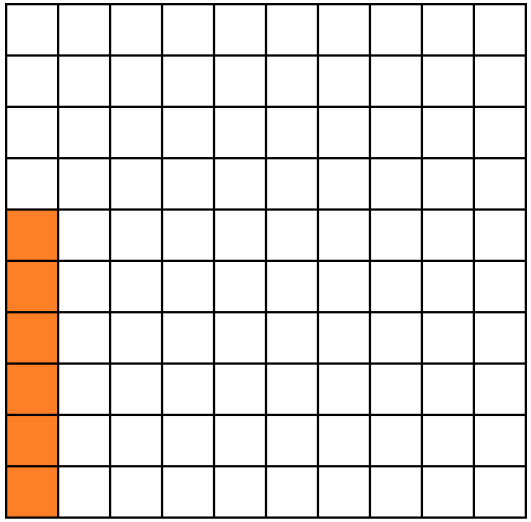
738.42

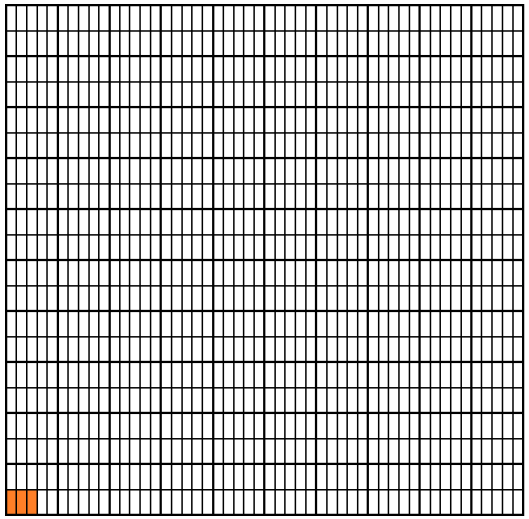
738.42

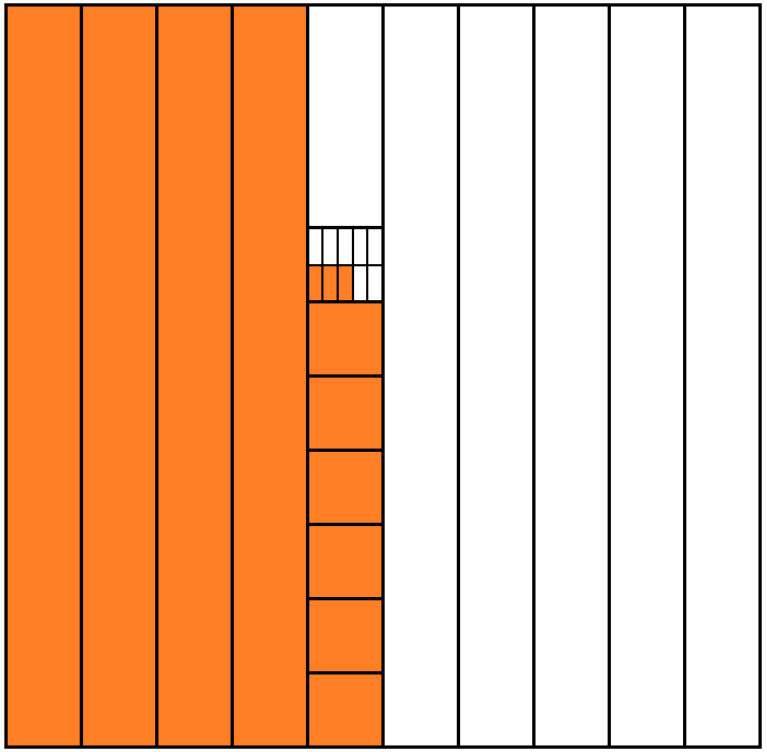
7 hundreds
3 tens
8 ones
4 tenths
2 hundredths

$$738.42 = 7\left(100\right) + 3\left(10\right) + 8\left(1\right) + 4\left(\frac{1}{10}\right) + 2\left(\frac{1}{100}\right)$$





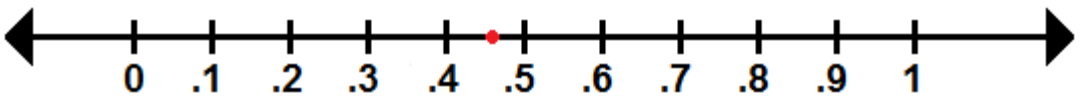


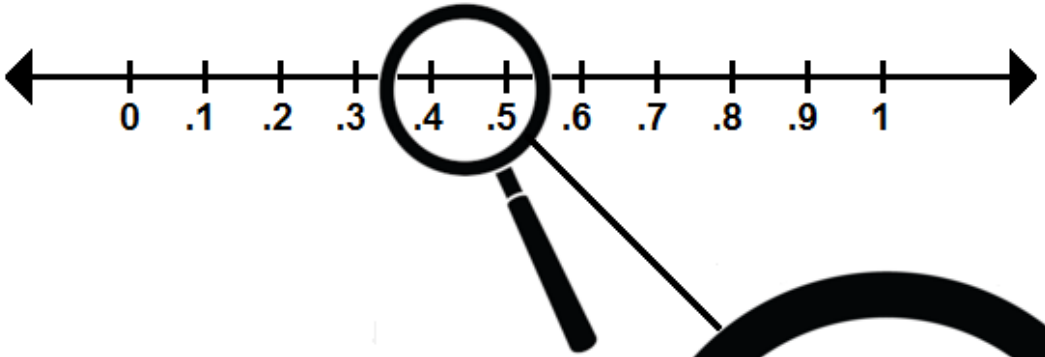


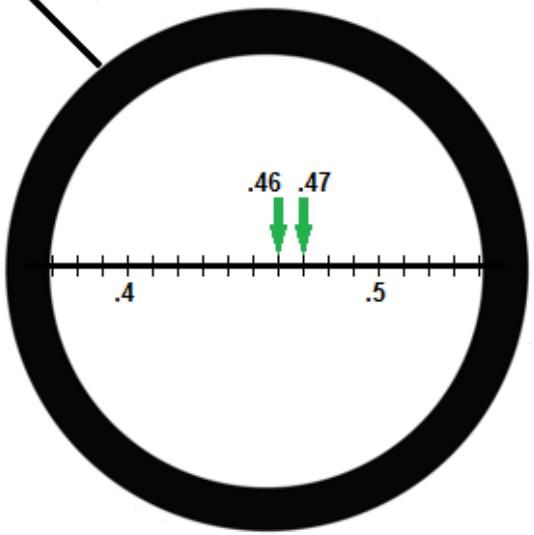
$$\frac{463}{1000} = 0.463$$

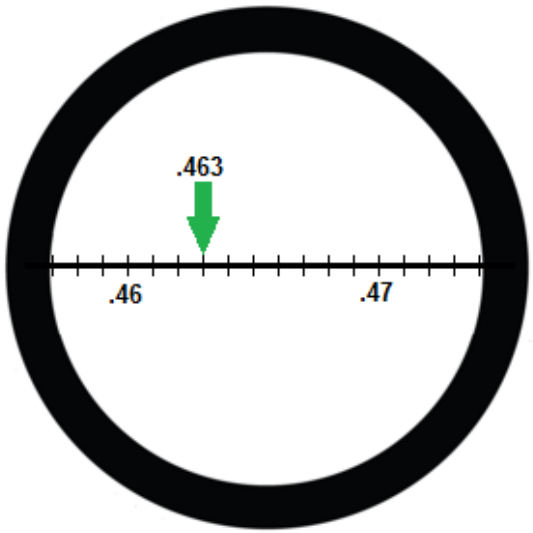
Location on a Number Line

$$\frac{463}{1000} = 0.463$$



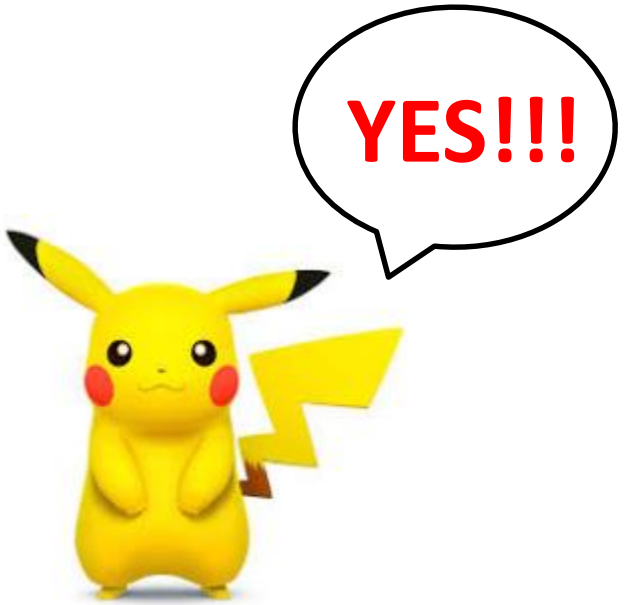


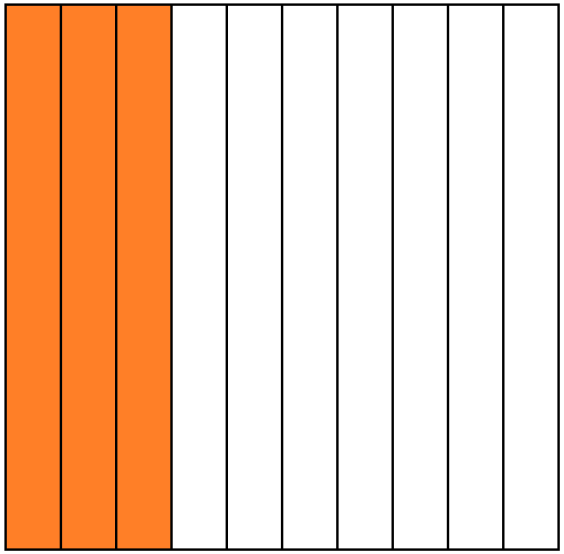


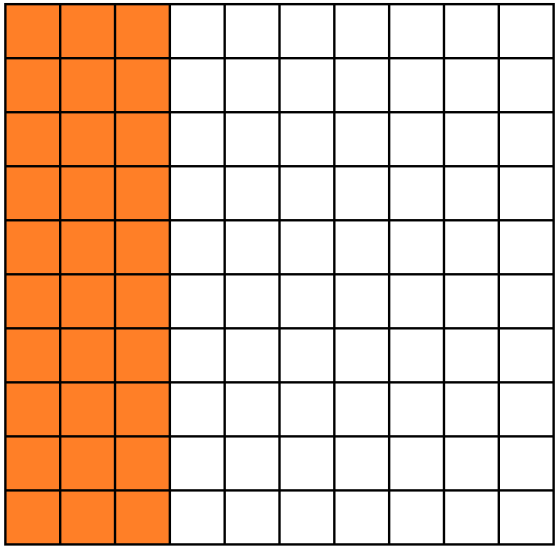


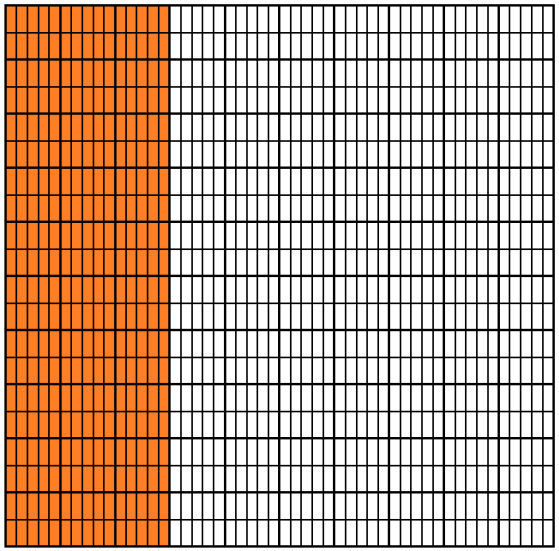
Do 0.3, 0.30, and 0.300 have the same value?

Do 0.3, 0.30, and 0.300 have the same value?







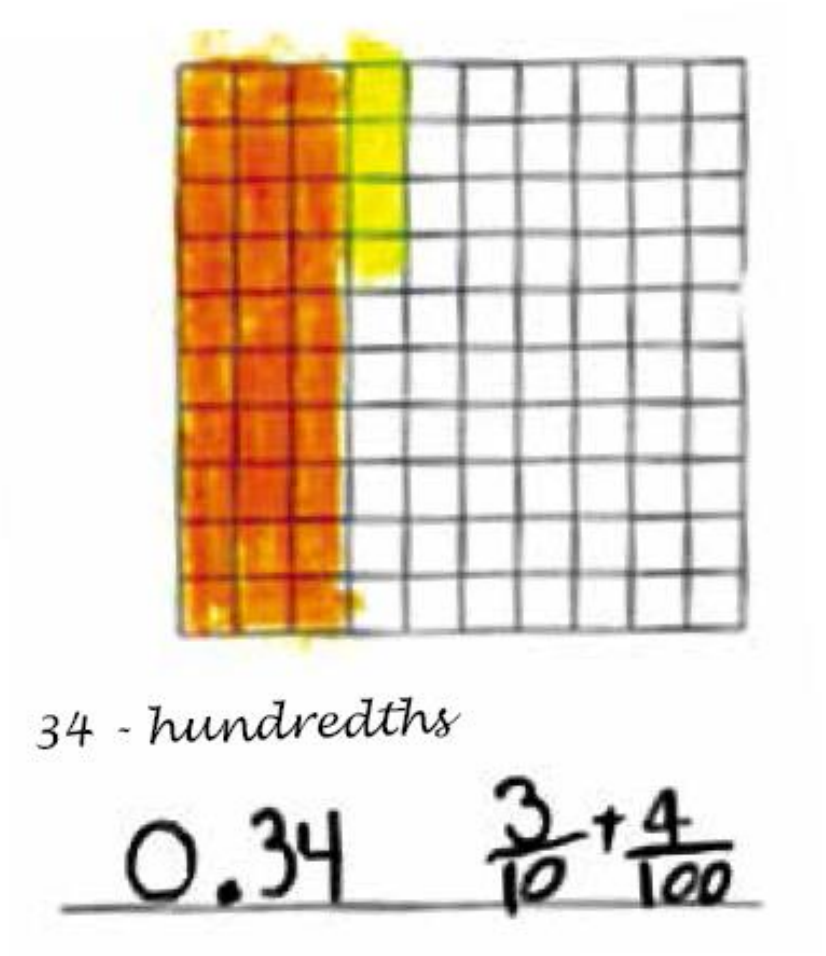


$$0.3 = \frac{3}{10}$$

$$0.30 = \frac{30}{100}$$

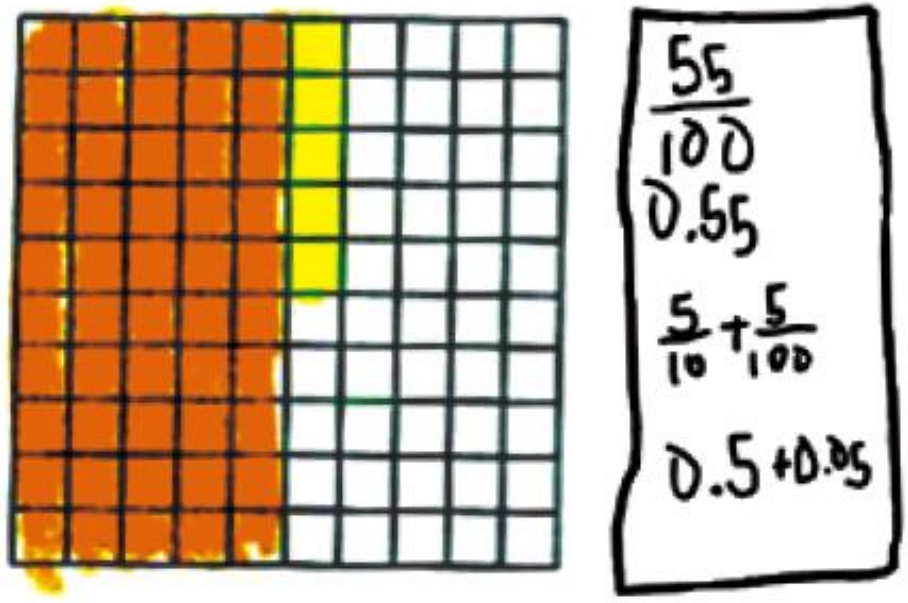
$$0.300 = \frac{300}{1000}$$

(a) Students first used fraction language and symbols to name pictorial representations for decimals.



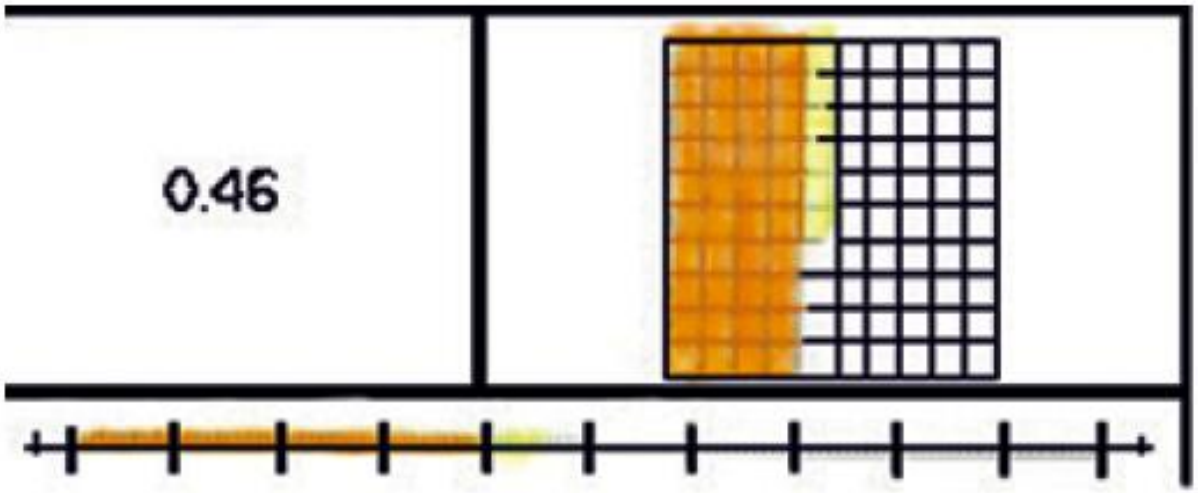
Source: Cramer, Monson, Ahrendt, Colum, Wiley, & Wyberg (2015)

(b) Then they translated to decimal language and symbols (e.g., naming an image of 0.55 with the words *five-tenths* and *five-hundredths*, with the written symbols 50/100 or 5/10 + 5/100).



Source: Cramer, Monson, Ahrendt, Colum, Wiley, & Wyberg (2015)

(c) From a decimal drawn on a 10 × 10 grid, students translated to a number line.



Source: Cramer, Monson, Ahrendt, Colum, Wiley, & Wyberg (2015)