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| <p>Some Numbers are Rational</p> $0.4\overline{85}$ | <p>Some Numbers are Rational</p> <p>I want to turn this repeating decimal into a fraction. I can see this decimal number has a two-digit repeating pattern.</p> |
| <p>Some Numbers are Rational</p> $x = 0.4\overline{85}$ | <p>Some Numbers are Rational</p> <p>First I'll set x equal to this number.</p> |
| <p>Some Numbers are Rational</p> $100x = 48.5\overline{85}$ | <p>Some Numbers are Rational</p> <p>Since the repeating pattern is 2 digits long, I'm going to multiply by 100 and write out a few more digits so I can still see the pattern.</p> |
| <p>Some Numbers are Rational</p> $\begin{array}{r} 100x = 48.5\overline{85} \\ -x = -0.485\overline{85} \end{array}$ | <p>Some Numbers are Rational</p> <p>Now I'll subtract the value of the decimal from each side. By lining the subtraction up vertically, it's easier to see what the left side will equal.</p> |
| <p>Some Numbers are Rational</p> $\begin{array}{r} 99x = 48.1 \\ 990x = 481 \end{array}$ | <p>Some Numbers are Rational</p> <p>If I multiply each side by 10, I can re-write my equation without any decimal numbers.</p> |
| <p>Some Numbers are Rational</p> $x = \frac{481}{990}$ | <p>Some Numbers are Rational</p> <p>Dividing each side by 990, I now know</p> $0.4\overline{85} = \frac{481}{990}$ |