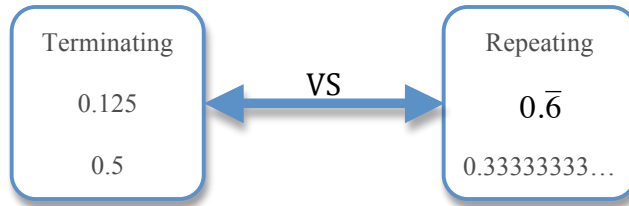


1.3 Converting Repeating Decimals into Fractions



Remember – Where do repeating decimals come from?

$\frac{1}{3} = 0.\bar{3}$ $\begin{array}{r} 0.333... \\ 3 \overline{)1.000} \\ \underline{-9} \\ 10 \\ \underline{-9} \\ 10 \\ \underline{-9} \\ 1 \end{array}$	$\frac{2}{11} = 0.1818...$ $\begin{array}{r} 0.1818... \\ 11 \overline{)2.0000} \\ \underline{-11} \\ 90 \\ \underline{-88} \\ 20 \\ \underline{-11} \\ 90 \\ \underline{-88} \\ 2 \end{array}$
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Class Notes - Convert the following decimals into fractions.

LP#1 $0.\bar{3}$	$0.\bar{1}$
LP#2 $0.44444444444444...$	$0.077777777777....$

LP#3 0.18181818...	0.4545454545...
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Review - Convert the following decimals into fractions.

R#1 $0.\overline{6}$	0.1616161616...
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R#2 $0.\overline{5}$	0.72727272...
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R#3 0.00 $\bar{3}$	0.000 $\bar{6}$
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Homework Problems

Convert the following decimals into fractions.

- 1) $0.\bar{2}$ 2) $0.\bar{7}$ 3) $0.0\bar{5}$ 4) $0.00\bar{8}$ 5) $0.909090\dots$ 6) $0.\bar{4}$
- 7) $0.\bar{8}$ 8) $0.7\bar{3}$ 9) $0.4\bar{6}$ 10) $0.1333333\dots$ 11) $0.9\bar{3}$ 12) $0.8666666\dots$

- 13) State three fractions that are equivalent to a repeating decimal expression.
- 14) State three denominators to proper fractions that will always yield a terminating decimal regardless of what non-zero numerator is used.

Synthesis

Convert the fractions into a decimal. Round to the nearest ten-thousandth.

- 15) $\frac{7}{9}$ 16) $\frac{2}{3}$ 17) $\frac{6}{11}$ 18) $\frac{3}{22}$

Round the following decimals to the nearest thousandth and express your answer as a fraction.

- 19) $0.7\bar{3}$ 20) $0.\bar{5}$ 21) $0.08\bar{3}$ 22) $0.4\bar{6}$

- 23) Can a radical expression have a repeating decimal other than zero? Explain.
- 24) Give 3 different rational approximations for $\sqrt{56}$. For each approximation state the name of the decimal that you rounded to.
- 25) What is the repeating decimal for the fraction $\frac{3}{7}$. Give 3 different approximations for this fraction.