4.NF Expanded Fractions and Decimals

Complete the table.

Fraction	Expanded Fraction Form	Expanded Decimal Form	Decimal
$43\,\frac{65}{100}$	$40 + 3 + \frac{6}{10} + \frac{5}{100}$	$40 + 3 + 0.6 + 0.05$	43.65
$21\,\frac{90}{100}$			
$40\,\frac{76}{100}$			
$7\,\frac{82}{100}$			
$18\,\frac{3}{100}$			

Commentary:
The purpose of this task is for students to show they understand the connection between fraction and decimal notation by writing the same numbers both ways. Comparing and contrasting the two solutions shown below shows why decimal notation can be confusing. The first solution shows the briefest way to represent each number, and the second solution makes all the zeros explicit.

Solution: Supressing unnecessary zeros

Fraction	Expanded Fraction Form	Expanded Decimal Form	Decimal
$43\frac{65}{100}$	$40 + 3 + \frac{6}{10} + \frac{5}{100}$	$40 + 3 + 0.6 + 0.05$	43.65
$21\frac{90}{100}$	$20 + 1 + \frac{9}{10}$	$20 + 1 + 0.9$	21.9
$40\frac{76}{100}$	$40 + \frac{7}{10} + \frac{6}{100}$	$40 + 0.7 + 0.06$	40.76
$7\frac{82}{100}$	$7 + \frac{8}{10} + \frac{2}{100}$	$7 + 0.8 + 0.02$	7.82
$18\frac{3}{100}$	$10 + 8 + \frac{3}{100}$	$10 + 8 + 0.03$	18.03

Solution: Keeping all zeros

Fraction	Expanded Fraction Form	Expanded Decimal Form	Decimal
$43\frac{65}{100}$	$40 + 3 + \frac{6}{10} + \frac{5}{100}$	$40 + 3 + 0.6 + 0.05$	43.65
$21\frac{90}{100}$	$20 + 1 + \frac{9}{10} + \frac{0}{100}$	$20 + 1 + 0.9 + 0.00$	21.90
$40\frac{76}{100}$	$40 + 0 + \frac{7}{10} + \frac{6}{100}$	$40 + 0 + 0.7 + 0.06$	40.76
$7\frac{82}{100}$	$0 + 7 + \frac{8}{10} + \frac{2}{100}$	$0 + 7 + 0.8 + 0.02$	7.82
$18\frac{3}{100}$	$10 + 8 + \frac{0}{10} + \frac{3}{100}$	$10 + 8 + 0.0 + 0.03$	18.03

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