

5.1

Lesson

D 2 P

decimal to percent *2 places to right*

Key Ideas

percent to decimal

Writing Percents as Decimals

Words Remove the percent symbol. Then divide by 100, which moves *2 places to left* the decimal point two places to the left.

Numbers $82\% = 82.\% = 0.82$ $2.45\% = 02.45\% = 0.0245$

Writing Decimals as Percents

Words Multiply by 100, which moves the decimal point two places to the right. Then add a percent symbol.

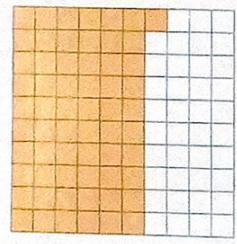
Numbers $0.47 = 0.47 = 47\%$ $0.\bar{2} = 0.222\dots = 22.\bar{2}\%$

Remember
Bar notation indicates one or more repeating digits.

Example 1 Converting Between Percents and Decimals

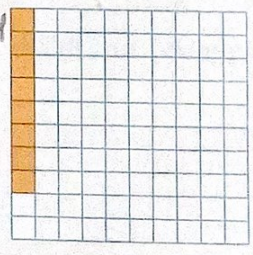
Write each percent as a decimal or each decimal as a percent. Use a model to represent each number.

a. $61\% = 61.\% = 0.61$



Every number b. $8\% = 08.\% = 0.08$

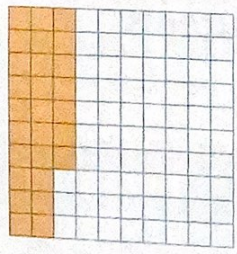
has an imaginary decimal at the very end



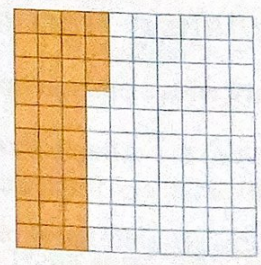
0.61

0.08 is fine too

c. $0.27 = 0.27 = 27\%$



d. $0.\bar{3} = 0.333\dots = 33.\bar{3}\%$

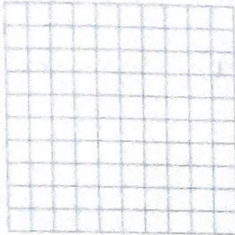


Try It

Write the percent as a decimal or the decimal as a percent. Use a model to represent the number.

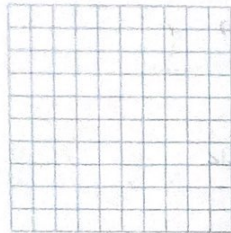
1. 39%

0.39



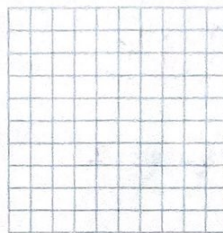
2. $12.\overline{6}\%$

0.126



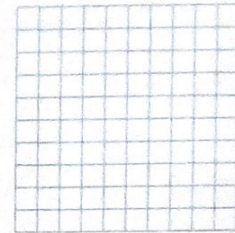
3. 0.05

5%



4. 1.25

125%



Example 2 Writing Fractions as Decimals and Percents

Write each fraction as a decimal and a percent.

Remember

For a fraction with a denominator of 100,

$$\frac{n}{100} = n\%$$

a. $\frac{4}{5}$

$4 \div 5 = 0.8$

$$\frac{4}{5} = \frac{4 \times 20}{5 \times 20} = \frac{80}{100} = 80\% = 0.8$$

► So, $\frac{4}{5}$ can be written as 0.8 or 80%.

DIVIDE!
top dog in the house

$$\begin{array}{r} 0.8 \\ 5 \overline{)40} \\ \underline{-40} \\ 0 \end{array}$$

b. $\frac{15}{11}$

Use long division to divide 15 by 11.

$$\frac{15}{11} = 1.\overline{36}$$

$$\begin{array}{r} 1.3636 \\ 11 \overline{)15.0000} \\ \underline{-11} \\ 40 \\ \underline{-33} \\ 70 \\ \underline{-66} \\ 40 \end{array}$$

Write $1.\overline{36}$ as a percent.

$$1.\overline{36} = 1.3636\dots = 136.\overline{36}\%$$

The remainder repeats. So, it is a repeating decimal.

$$\begin{array}{r} 40 \\ \underline{-33} \\ 70 \\ \underline{-66} \\ 4 \end{array}$$

► So, $\frac{15}{11}$ can be written as $1.\overline{36}$ or $136.\overline{36}\%$.



Try It

Write the fraction as a decimal and a percent.

5. $\frac{5}{8}$ $5 \div 8$

6. $\frac{1}{6}$ $1 \div 6$

7. $\frac{11}{3}$ $11 \div 3$

8. $\frac{3}{1000}$ $3 \div 1000$

0.625

$0.1\bar{6}$

$3.\bar{6}$

0.003

62.5%

16.6%

366.6%

0.3%

In-Class Practice

1 I don't understand yet.

2 I can do it with help.

3 I can do it on my own.

4 I can teach someone else.

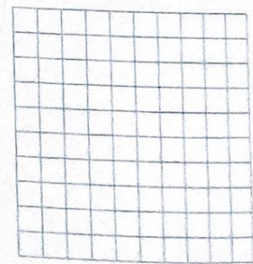
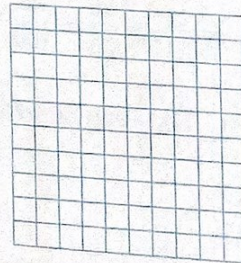
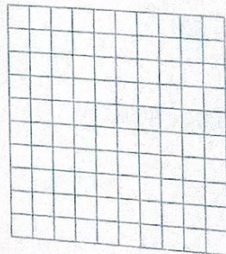
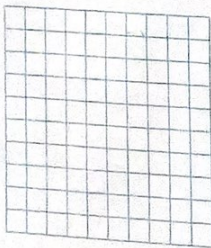
CONVERTING BETWEEN PERCENTS AND DECIMALS Write the percent as a decimal or the decimal as a percent. Use a model to represent the number.

9. 46%

10. $66.\bar{6}\%$

11. 0.18

12. $2.\bar{3}$

**WRITING FRACTIONS AS DECIMALS AND PERCENTS** Write the fraction as a decimal and a percent.

13. $\frac{7}{10}$

14. $\frac{5}{9}$

15. $\frac{7}{2000}$

16. $\frac{17}{15}$