Learning Objective:

We will calculate[1] <u>percentages</u>.

[1]solve, compute

NS1.4 Calculate given percentages of quantities and solve problems involving discounts at sales, interest earned, and tips.

<u>Pre-pronounce</u>, choral read, What are we learning today? PS, 2x

Warm Up
Write each fraction as a decimal.

1. $\dfrac{3}{4}$ **0.75**

2. $\dfrac{3}{8}$ **0.375**

APK: Teacher models one, students WB second

Concept

Vocabulary

percent

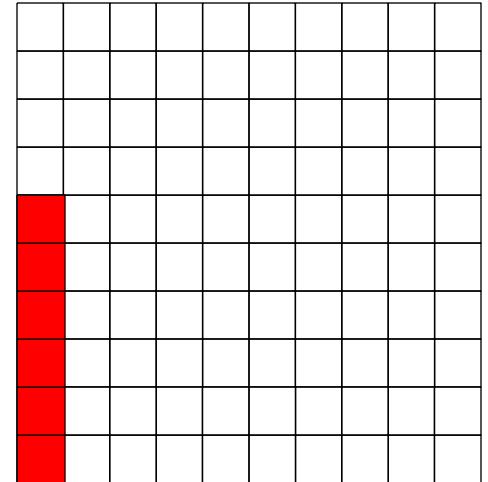A **<u>percent</u>** is a ratio of a number to 100. The symbol % is used to indicate a percent.

The word *percent* means "per hundred." So 6% means "6 out of 100."

Pre-pronounce, choral read, What is % PS, 2x

Notice the 10 x 10 square grid. There are 100 total squares. Six of the squares are colored. Six red squares of 100 total squares can be shown like this:

$$\frac{6}{100} = 6\%$$

Which of the following is an example of a percent?

A   76   B   32%

How do you know that? PS 3x

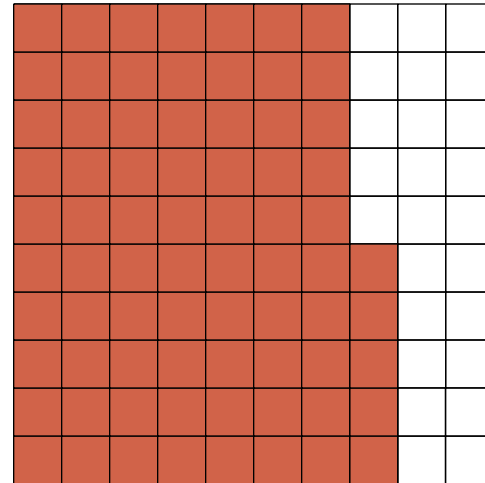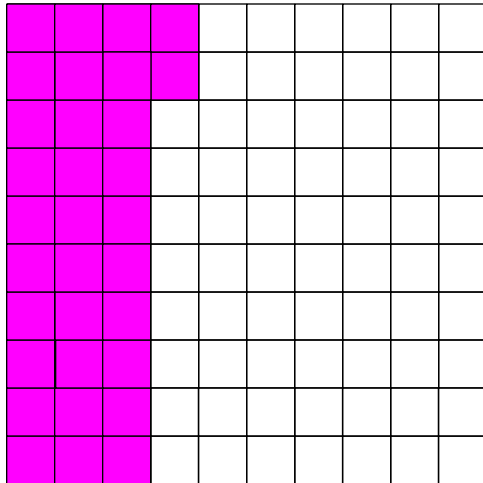**Importance**

You need to know how to calculate percent

*to do well on the CSTs and benchmarks
*to calculate your savings on purchased items
*to calculate interest on borrowed money

Here's a sample release question...

Example 1: Modeling Percents

Write the percent modeled by each grid.

A.

$$\frac{\text{shaded}}{\text{total}} \longrightarrow \frac{32}{100} = 32\%$$

$$\frac{\text{shaded}}{\text{total}} \longrightarrow \frac{75}{100} = 75\%$$

I do: How did I determine the percent modeled?

We do

Check It Out!

Write the percent modeled by each grid.

A.
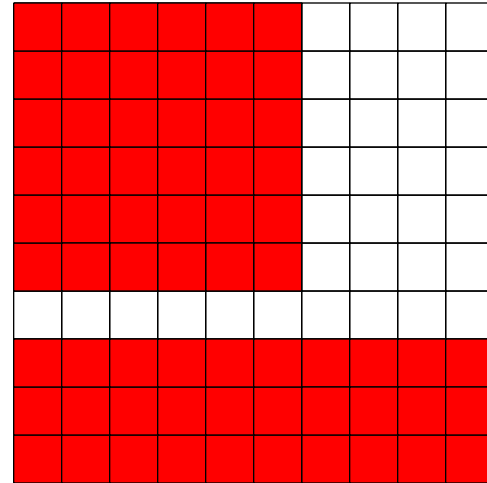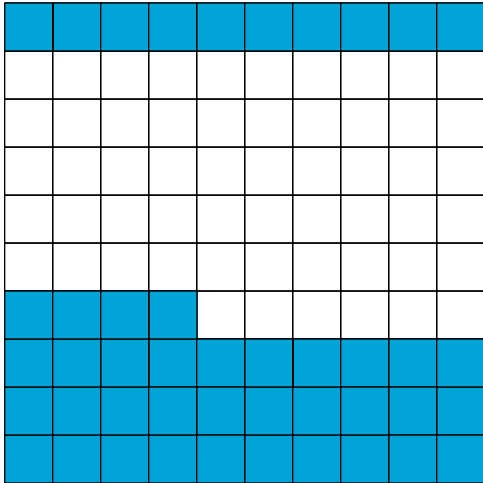
$$\frac{\text{shaded}}{\text{total}} \longrightarrow \frac{44}{100} = 44\%$$

$$\frac{\text{shaded}}{\text{total}} \longrightarrow \frac{66}{100} = 66\%$$
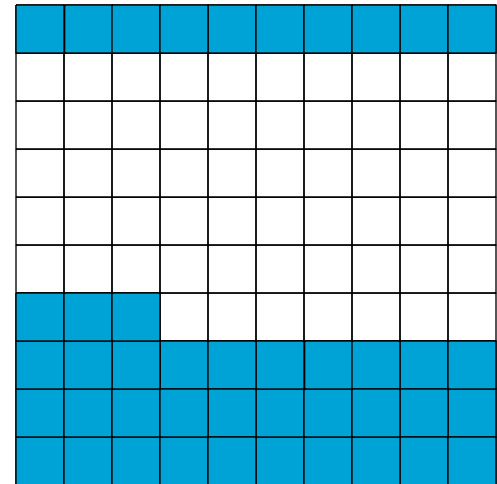
I do: How did I determine the percent modeled?

We do

Write the percent modeled by each grid.

A.

$$\frac{\text{shaded}}{\text{total}}$$

28%
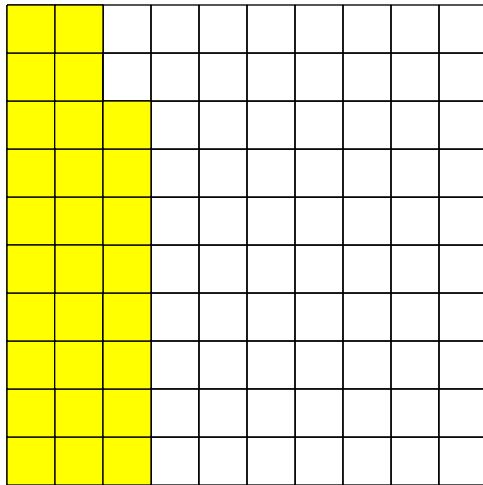
43%

You do **How did you determine the percent modeled? PS 3x**

Variation 2

Writing Percents as Fractions

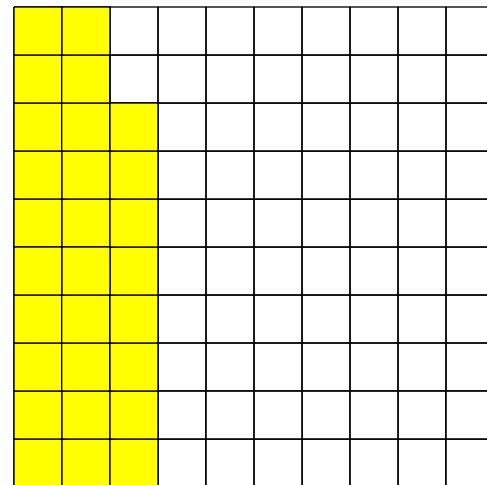## Write 28% as a fraction in simplest form.

$$28\% = \frac{28}{100}$$ *Write the percent as a fraction with a denominator of 100.*

$$= \frac{7}{25}$$ *Simplify.*

So 28% can be written as $\frac{7}{25}$

I do: What did I do to make 28% a fraction in simplest form? PS 3x

Check It Out!

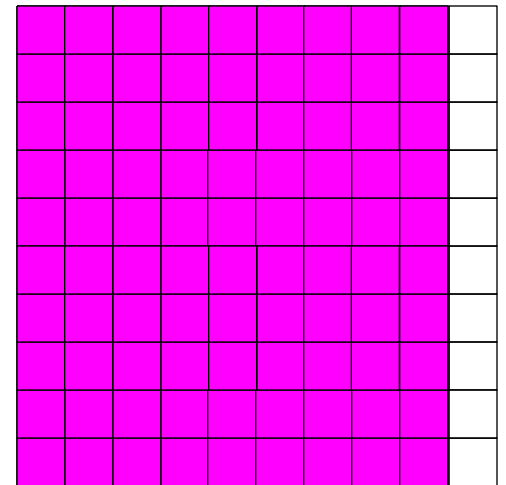**Write 90% as a fraction in simplest form.**

$$90\% = \frac{90}{100}$$ *Write the percent as a fraction with a denominator of 100.*

$$= \frac{9}{10}$$ *Simplify.*

So 90% can be written as $\frac{9}{10}$

We do: How did we calculate 90% as a
fraction in its simplest form? PS 3x

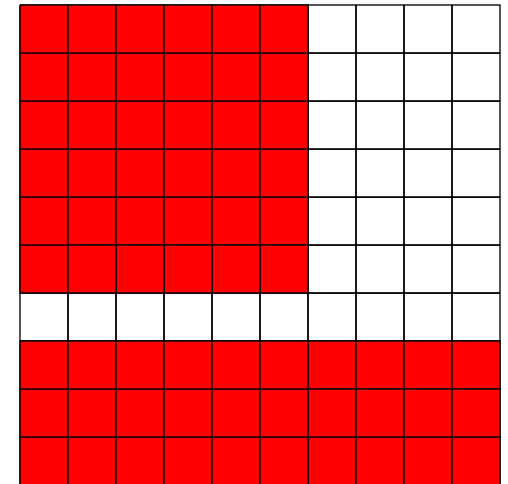**Write 66% as a fraction in simplest form.**

$$66\% = \frac{66}{100}$$ *Write the percent as a fraction with a denominator of 100.*

$$= \frac{33}{50}$$ *Simplify.*

So 66% can be written as $\dfrac{33}{50}$

Additional Example 3: Writing Percents as Decimals

Write 17% as a decimal.

Method 1

Use pencil and paper.

$$17\% = \frac{17}{100}$$ *Write the percent as a fraction with a denominator of 100.*

$$= 0.17$$ *Divide 17 by 100.*

Method 2 **Use mental math.**

$$17\% = 0.17$$ *Move the decimal point two places to the left.*

I do: How did I calculate the percent to a decimal? PS 3x

Check It Out! Example 3

Write 24% as a decimal.

Method 1

Use pencil and paper.

$$24\% = \frac{24}{100}$$ *Write the percent as a fraction with a denominator of 100.*

$$= 0.24$$ *Divide 24 by 100.*

Method 2

Use mental math.

$$24\% = 0.24$$ *Move the decimal point two places to the left.*

I do: How did I calculate the percent to a decimal? PS 3x

Check It Out! Example 3 You Do It!

Write 44% as a decimal.

Method 1

Use pencil and paper.

$$44\% = \frac{44}{100}$$ *Write the percent as a fraction with a denominator of 100.*

$$= 0.44$$ *Divide 44 by 100.*

Method 2

Use mental math.

$$44\% = 0.44$$ *Move the decimal point two places to the left.*

I do: How did I calculate the percent to a decimal? PS 3x

Review - Vocabulary

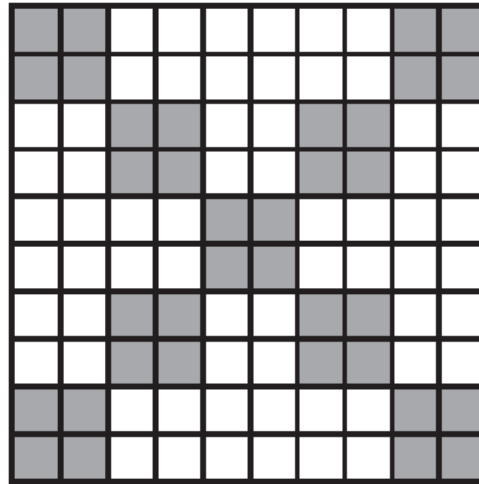**What is a ratio of a number to 100 that means "per hundred?"**

WB

A <u>percent</u> is a ratio of a number to 100. The symbol % is used to indicate a percent.

Lesson Quiz

1. Write the percent modeled by the grid.

36%

2. Write 92% as a fraction in simplest form.

$$\frac{23}{25}$$

3. Write 16.4% as a decimal.

0.164