

How to Teach Percentages

Name _____

The word “percentage” means “per 100” or “out of 100.” Using percentages makes it easier to compare fractions, as in: Who did better, Bob who scored 9 out of 11 correct on a quiz, or Manuel, who got 12 out of 15 correct?

The symbol for percent is $\%$. Whenever you see that symbol after a number, you should know that the number has been converted into a value that is out of 100. So if you get an 85% on a test, it doesn’t mean that there were 100 questions on the test. It means that the score you earned is the same (approximately) as if there had been 100 questions and you received 85 correct.

One way to calculate percentage is to divide the number of questions on a quiz that you got correct by the total number of questions. This will result in a decimal number. You can then change it to a percent simply by moving the decimal point over two places to the right.

This method of putting your number correct over the total number is expressed more generally with ratio: $\frac{\text{part}}{\text{whole}}$, where the part is the part you received correct and the whole is the total number of problems.

This fraction, or ratio of $\frac{\text{part}}{\text{whole}}$ can be used for any percentage problem. For example: there are 30 students in a class and 18 earned an A. Find the percent of students who earned an A.

Solution:

Use the ratio $\frac{\text{part}}{\text{whole}}$ to solve.

Part of class who earned A’s \Rightarrow 18
Whole number of students in class \Rightarrow 30

Make $\frac{18}{30}$ a decimal by dividing.
$$\begin{array}{r} 0.6 \\ 30 \overline{)18.0} \\ \underline{- 180} \end{array}$$

Then move the decimal point two places to the right (or multiply it by 100) to make the decimal number into a percent. $0.60 = 60. = 60\%$

Name _____

Try the next problems on your own. Find the percentages for the following problems. Show all of your work in the box provided.

- 1. Susie takes a test and receives 5 out of 6 questions correct. What was her percentage on the test?**

- 2. James takes a test and receives 14 out of 35 questions correct on his test. What was his percentage on the test?**

How to Teach Percentages *Answer Key*

1. 83%
2. 40%

Percentages of the European Union (EU)

Name _____

Choose the best answers for the percentage questions below. **Show your work.**

1. There are 58 countries in Europe and 28 of these countries are currently members of the European Union. What percentage of the countries are members of the European Union?

- A. 67.5 %
- B. 48%
- C. 60%
- D. 30%

2. There are 28 countries that are members of the European Union. However, only 18 of these countries are currently using Euro coins and notes. What is the percent of the EU countries that use the Euro?

- A. 27%
- B. 18%
- C. 3%
- D. 64%

3. There are 58 countries in Europe, 22 of these countries have not been considered for membership in the EU. What is the percent of the countries that have not been considered for the membership of the EU at this time?

- A. 765%
- B. 62.1%
- C. 37.93%
- D. 28%

Use this information for questions 4 and 5. Each of the member states is assigned a specific number of seats in the upcoming 2019 elections. Population of the country, economy, political influence, and other factors determine the number of seats and thus votes. At present, in the absence of consensus, a qualified majority voting requires at least 14 countries voting with at least 555 out of a total 751 of the voting weights. The following is a sample list of votes per country:

- 96 seats for Germany
- 54 seats for Spain
- 21 seats for Greece
- 11 seats for Ireland

4. What is the percentage of votes that are necessary to approve a decision from the European Union if they must obtain 62 out of 87 votes?

- A. 149%
- B. 74%
- C. 25%
- D. 65%

5. Of the four countries listed, which country makes up close to 13% of the population and thus power?

- A. Germany
- B. Spain
- C. Greece
- D. Ireland

Use this information for question 6. The following groups of countries make up close to 75% of the seats in the European Union.

- 105 votes Greece, Czech Republic, Belgium, Hungary, and Portugal
- 111 votes Spain and Poland, Malta
- 178 votes Romania, United Kingdom, Italy
- 187 votes Germany, France, Bulgaria

6. Calculate the percentage of seats each of these groups represent. How many seats represent 25% of the total number of seats?

- A. 105
- B. 111
- C. 178
- D. 187

Percentages of the EU *Answer Key*

1. B (48%)
2. D (64%)
3. C (37.93%)
4. B. (74%)
5. A Germany
6. D 187