

**Lesson #32 - Fractions, Decimals and Percents**

A **percent** is a ratio out of 100. The % symbol is used to represent a percent. Percents can be expressed three different ways:

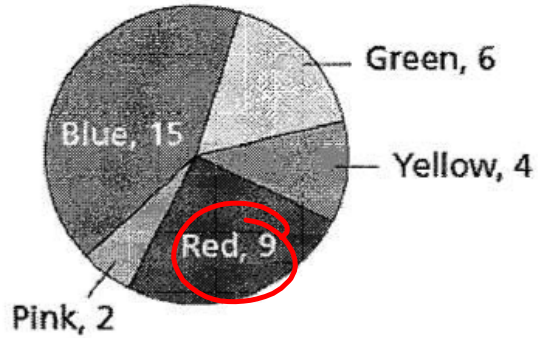
Fractions  $\frac{1}{2}$   $\frac{1}{4}$   $\frac{37}{100}$     Decimals 0.6    % 13%.

Match the percents with the correct sentence clues.

A	25%	I am half of a half. 5 cubic inches of water filled in a 20 cubic inch bottle.	A
B	50%	I am less than $\frac{1}{100}$ . 25 out of 5,000 contestants won a prize.	H
C	30%	I am the chance of birthing a boy or a girl. Flip a coin, and it will land on heads or tails.	B
D	1%	I am less than a half but more than one-fourth. 15 out of 50 play drums in a band.	C
E	10%	I am equal to 1. 35 question out of 35 questions were answered correctly.	F
F	100%	I am more than 1. Instead of the \$1,200 expected to be raised, \$3,600 was collected for the school's fundraiser.	G
G	300%	I am a tenth of a tenth. One penny is this part of one dollar.	D
H	$\frac{1}{2}$ %	I am less than a fourth but more than a hundredth. \$11 out of \$110 earned is saved in the bank.	E

Example 1) Using the diagram below, determine how much of the whole circle is made up by red.

- A) Red is 9 out of 36  
 B) Fraction:  $\frac{9}{36} = \frac{1}{4}$   
 C) Decimal: 0.25  
 D) Percent: 25%



**Converting Percent to Decimal: (Right to Left)**

- 1) Remove the % symbol
- 2) Move the decimal point two places to the left.

PeRcent → DecimaL  
 (Right → Left)

Example 2) Use the definition of the word *percent* to write each percent as a fraction and then as a decimal.

Percent	Fraction	Decimal
<u>37.5%</u>	$\frac{375}{1000} = \frac{5}{8}$	0.375
100%	$\frac{100}{100}$	1.00
110%	$\frac{110}{100} = 1\frac{1}{10}$	1.10
1%	$\frac{1}{100}$	0.01
$\frac{1}{2}\%$	$\frac{.5}{100} = \frac{5}{1000} = \frac{1}{200}$	0.005

Example 3) Convert the following percents to its decimal.

- A) 36% = 0.36      B) 75% = 0.75      C) 9.76% = .0976  
0.0976

**Converting Decimal to a Percent** (left → right)

- Move the decimal point two places to the right and add a percent symbol (%) after the number
- Insert zeros as place holders when necessary.

Decima**L** → Pe**R**cent  
(Left → Right)

Example 4) Convert  $0.\underline{4}7$  to a percent. 47%

Try it! Convert the following decimals to its percent.

5)  $0.\underline{2}5 = \underline{25\%}$       6)  $0.\underline{3}75 = \underline{37.5\%}$       7)  $0.\underline{0}49 = \underline{4.9\%}$

**Converting a Fraction to a Decimal**

- To change a fraction to a decimal, divide the numerator (top) by the denominator (bottom).

Example 8) Convert  $\frac{2}{5}$  to a decimal. 0.4

**Converting a Fraction to a Percent**

- To change a fraction to a percent, first change the fraction to a decimal, then change the decimal to a percent.

Example 9) Convert  $\frac{5}{8}$  into a percent. 0.625 → 62.5%

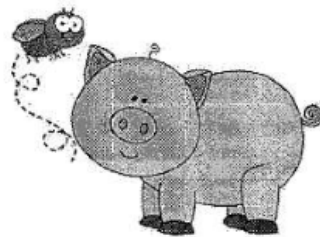
**Not, You Try!**

10) Complete the table below using your knowledge of fractions, decimals and percents. Show any necessary work in the space below.

Fraction (in simplest form)	Decimal	Percent
$\frac{60}{100} = \frac{3}{5}$	0.60	60%
$\frac{15}{100} = \frac{3}{20}$	0.15	15%
$\frac{1}{20}$	0.05	5%

11) The table below shows the results of a survey which asked students to vote for their favorite animal.

Animal	Number of Students
fox	10
pig	15
camel	5



- A) How many students were surveyed? 30
- B) Express the total number of students who voted for a fox as a fraction.  $\frac{10}{30}$
- C) Express the number of students who voted for a pig as a decimal. .5
- D) Express the number of students who voted for a camel as a percent. 16.7%

12) Convert the following percents into decimals.

a. 90%

.9

b. 0.9%

.009

c. 900%

9.0

d.  $\frac{9}{10}$ %

0.009

13) Convert the following percents into fractions.

a. 90%

$\frac{9}{10}$

b. 0.9%

$\frac{9}{1000}$

c. 900%

9

d.  $\frac{9}{10}$ %

$\frac{9}{1000}$

14) Benjamin believes that  $\frac{1}{2}$ % is equivalent to 50%. Is he correct? Why or why not?

