

Lesson: Decimals, Fractions and Percents

Sixth Grade Objective:

1.02 Develop meaning for percents

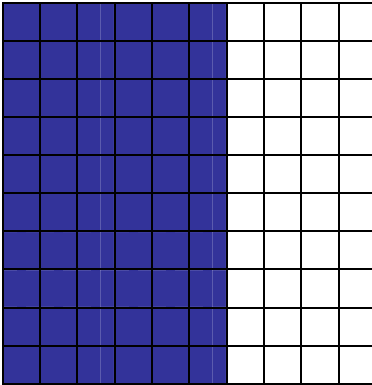
a) Connect the model, number word, and number using a variety of representations. b)

Make estimates in appropriate situations

1.03 Compare and Order Rational Numbers

Lesson: Determining the fraction, decimal and percent with a grid.

Examine the grid:



How many blocks are in the entire grid?

That is correct! 100

Shortcut: Count the length and width and multiply! $10 \cdot 10 = 100$.

How many blue blocks are on the grid?

That is correct! 60

We are now going to use that information to create a decimal, fraction and percent!

Step 1: There are 100 blocks total so that is our denominator (the bottom number of a fraction). The shaded part will be the numerator (the top number of a fraction).

Fraction: $\frac{60}{100} = \frac{3}{5}$ (All fractions will be simplified which means to divide the numerator and denominator by the GCF! In this fraction I divided both numbers by 20)

Step 2:

You can look at the grid and tell the decimal is .60. It is like having sixty cents out of a dollar.

Decimal: .60 or .6 (Read this as sixty hundredths or 6 tenths)

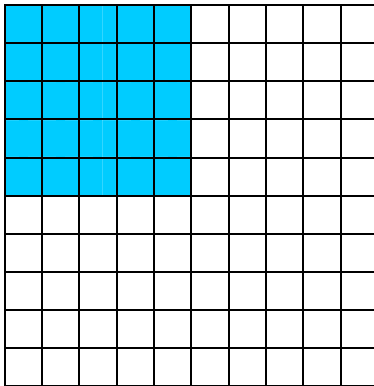
Step 3:

You can look at the grid and also tell that it is 60%. It is like getting a 60% out of a 100 on a test.

Percent: 60%

Try these on your own!

1.



Percent: _____

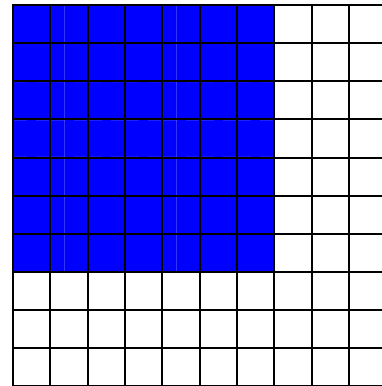
Fraction:

Fraction:

Decimal:

Decimal:

2.



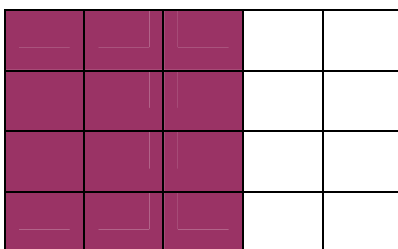
Percent: _____

Check your answers!

1. $\frac{25}{100} = \frac{1}{4} = .25 = 25\%$

2. $\frac{49}{100} = .49 = 49\%$

Lesson: Converting Fractions Decimals and Percents



Look at the grid.

How many total blocks are on the grid? That is correct! 20

How many purple blocks are on the grid? That is correct! 12

We are now going to make a fraction, decimal and percent.

Step 1:

The fraction is $\frac{\text{purpleblocks}}{\text{totalblocks}} = \frac{12}{20}$. You then have to make it in simplest form by dividing by the GCF, three, or simply by looking at the rows. There are 3 purple rows out of 5 total rows. The fraction in simplest form is $\frac{3}{5}$.

Step 2:

Now lets convert (change) $\frac{3}{5}$ to a decimal. You simply divide the numerator by the denominator. The problem is that 5 is larger than 3 so you have to add a decimal and a zero. Then float your decimal to the top or to the quotient (answer): $\frac{12}{20} = \frac{3}{5} = 5 \overline{)3.0} = .6$ or .60.

Step 3:

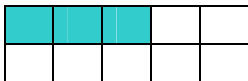
Now lets convert the decimal .6 to a percent. You simply multiply .6 by 100 since percent is out of 100 or just move the decimal point two places to the right: $.6 = 60\%$

Step 4:

To convert the percent back to a decimal, divide by 100 or simply move the decimal point that is hiding at the end of 60 two places to the left. Example: $60 \div 100 = 0.6$

Quiz Yourself

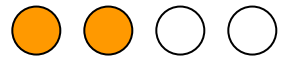
Convert to a fraction, decimal and percent.



1. Fraction:
Decimal:
Percent:



2. Fraction:
Decimal:
Percent:



3. Fraction:
Decimal:
Percent:

B. Complete the Chart

Fraction	Decimal	Percent
	<i>.75</i>	
$\frac{4}{5}$		
		86%
	<i>.275</i>	

C.

Lacey took a math test. She got 14 out of 15 correct. What is the percent of her test? Estimate your answer first and then calculate the actual percent.

Extra Practice!

Place Value: <http://www.funbrain.com/tens/index.html>

Place Value Chart:

<http://www.enchantedlearning.com/math/decimals/placevalue/gifs/ex.GIF>

Conversions: http://www.mathgoodies.com/lessons/vol4/challenge_vol4.html

Check Your Answers!

A.

1. $\frac{3}{10} = 0.3$ or $.3$ or $.30 = 30\%$

2. $\frac{2}{5} = 5 \overline{)2.0}^{\cdot 4} = 0.4$ or $.4$ or $.40 = 40\%$

3. $\frac{2}{4} = \frac{1}{2} = .50 = 50\%$

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B.

Fraction	Decimal	Percent
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$\frac{3}{4}$.75	75%
$\frac{4}{5}$	$\frac{4}{5} = 5 \overline{)4.0} = .8$	80%
$\frac{86}{100} = \frac{43}{50}$.86	86%
$\frac{275}{1000} = \frac{11}{40}$.275	27.5%

C.

Lacey's test score is $\frac{14}{15}$. Think about this before you do the math. It is almost 15 out of 15, which would be a 100%. So her score has to be in the 90s.

To convert a fraction to a percent you must first change it to a decimal: Divide

the numerator by the denominator: $15 \overline{)14.0}$ Remember the 15 is larger than the 14 so you must add a decimal and a zero. It actually turns out that the three is a repeating decimal. We are going to stop at the hundredths place since we are dealing with percents. So the decimal is .93 and all you do now is move the decimal point two places to the right to get 93%!