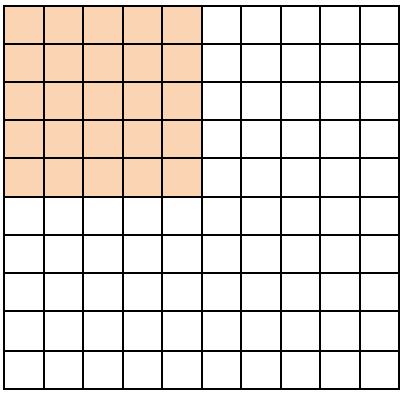
Converting Between Fractions and Percentages

Part A – Converting Fractions to Percentages

Like fractions, percentages represent parts of a whole. Since per***cent*** means "per *hundred*" there are 100 parts in a whole. i.e. 1 whole = 100%

Fraction	Percentage	Picture
$\frac{25}{100}$ **Why?** This square is split into 100 equal parts. Twenty-five (25) of the squares are shaded.	25 % **Why?** When a fraction has a denominator of 100, its percentage is equal to the numerator.	

1. Convert the following fractions into percentages.

a) $\frac{5}{100}$ =

b) $\frac{72}{100}$ =

c) $\frac{13}{100}$ =

d) $\frac{80}{100}$ =

To find the percentage of a fraction with a denominator other than one hundred (100) the following two methods can be done.

METHOD 1		Examples		
1.	Multiply **or** divide the numerator and the denominator by a number to get the denominator equal to one hundred (100).	$\frac{16}{50} \frac{\mathbf{x\ 2}}{\mathbf{x\ 2}} = \frac{32}{100}$	$\frac{19}{20} \frac{\mathbf{x\ 5}}{\mathbf{x\ 5}} = \frac{95}{100}$	$\frac{135}{300} \frac{\mathbf{\div\ 3}}{\mathbf{\div\ 3}} = \frac{45}{100}$
2.	The new numerator is equal to the percentage.	32%	95%	45%

2. Convert the following fractions into percentages.

a) $\frac{5}{10}$ =

b) $\frac{3}{4}$ =

c) $\frac{1}{25}$ =

d) $3\frac{7}{20}$ =

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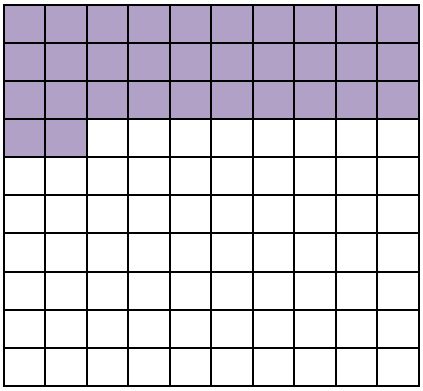
If the denominator of a fraction is not a factor of one hundred, then **METHOD 2** is used.

METHOD 2		**Example**	Thirty two (32) out of the one hundred (100) squares are shaded.
1.	Fractions are converted to decimal numbers by dividing the numerator by the denominator.	$\frac{16}{50} = 16 \div 50 = 0.32$	
2.	Decimal numbers are converted to percentages by multiplying the decimal number by 100%.	$0.32\ x\ 100\ \% = 32\ \%$	

3. Convert the following fractions into decimal numbers.

a) $\frac{6}{20} =$

b) $\frac{1}{4} =$

c) $\frac{15}{45} =$ (round to nearest hundredth)

d) $\frac{82}{90} =$ (round to nearest hundredth)

e) $\frac{70}{65} =$ (round to nearest hundredth)

f) $\frac{2}{5} =$

4. Convert the following fractions into percentages.

a) $\frac{19}{22} =$ (round to nearest hundredth)

b) $\frac{54}{60} =$

c) $\frac{25}{30} =$ (round to nearest hundredth)

d) $\frac{10}{18} =$ (round to nearest hundredth)

e) $\frac{25}{20} =$

f) $\frac{90}{45} =$

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PART B – Converting Percentages to Fractions

Since percentages consist of one hundred parts, every percentage can be written over a denominator of one hundred. Note: It is proper form to write fractions with whole numbers.

		Examples		
1.	Write the percentage as a fraction with a denominator of 100.	8%	39.5%	5.25%
		$\frac{8}{100}$	$\frac{39.5}{100}$	$\frac{5.25}{100}$
2.	Multiply the numerator **and** the denominator by a power of ten to make the decimal a whole number.	N/A	$\frac{39.5}{100} x \frac{10}{10} = \frac{395}{1000}$	$\frac{5.25}{100} x \frac{100}{100} = \frac{525}{10000}$
3.	Reduce if possible. Remember to change all improper fractions to a mixed number.	$\frac{2}{25}$	$\frac{79}{200}$	$\frac{21}{400}$

5. Convert the following percentages into fractions. Reduce where possible.

a) 58% =

b) 8% =

c) 22.5% =

d) 4% =

e) 1.5% =

f) 0.305% =

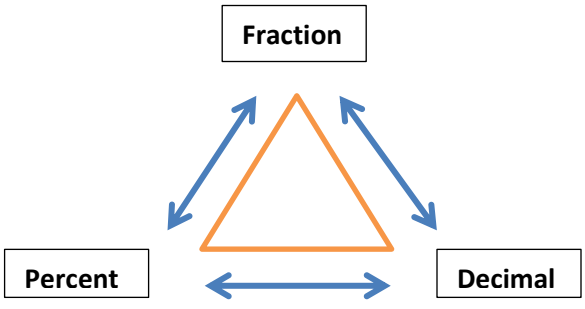
g) 375% =

h) 7.2% =

i) 0.02% =

j) 253% =

Summary:



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SOLUTIONS:

1. Convert the following fractions into percentages.

a) $\frac{5}{100}$ = **5%** b) $\frac{72}{100}$ = **72%** c) $\frac{13}{100}$ = **13%** d) $\frac{80}{100}$ = **80%**

2. Convert the following fractions into percentages.

a) $\frac{5}{10}$ = **50%** b) $\frac{3}{4}$ = **75%** c) $\frac{1}{25}$ = **4%** d) $3\frac{7}{20}$ = **3.35**

3. Convert the following fractions into decimal numbers.

a) $\frac{6}{20}$ = **0.3** b) $\frac{1}{4}$ = **0.25**

c) $\frac{15}{45}$ = **0.33** d) $\frac{82}{90}$ = **0.91**

e) $\frac{70}{65}$ = **1.08** f) $\frac{2}{5}$ = **0.4**

4. Convert the following fractions into percentages.

a) $\frac{19}{22}$ = **86%** b) $\frac{54}{60}$ = **90%**

c) $\frac{25}{30}$ = **83%** d) $\frac{10}{18}$ = **56%**

e) $\frac{25}{20}$ = **125%** f) $\frac{90}{45}$ = **200%**

5. Convert the following percentages into fractions. Reduce where possible.

a) 58% = $\frac{29}{50}$ b) 8% = $\frac{2}{25}$

c) 22.5% = $\frac{9}{40}$ d) 4% = $\frac{1}{25}$

e) 1.5% = $\frac{3}{200}$ f) 0.305% = $\frac{61}{20000}$

g) 375% = $3\frac{3}{4}$ h) 7.2% = $\frac{9}{125}$

i) 0.02% = $\frac{1}{5000}$ j) 253% = $2\frac{53}{100}$